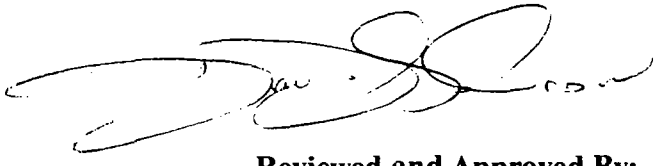
PRELIMINARY ASSESSMENT
ACME BRICK STRIP MINES
COLLINSVILLE, OKLAHOMA, TULSA COUNTY

November 16, 1992

OKLAHOMA STATE DEPARTMENT OF HEALTH

Prepared By:

David S. Crow, Environmental Specialist



Reviewed and Approved By:

Richard L. Brooks, Sr. Environmental Specialist

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I. Introduction

The Oklahoma State Department of Health (OSDH) is tasked by the U.S. Environmental Protection Agency (EPA), as authorized by CERCLA and as amended by SARA, under the Multi-Site Cooperative Agreement (CA# V-00645-01) to conduct a preliminary assessment (PA) of the Acme Brick Strip Mines site, (CERCLIS ID # not yet assigned). The primary purpose of this PA is to assess the immediate or potential threat of wastes at the site that may have an impact on public and environmental health; and to collect information sufficient to support a decision regarding the need for further action under CERCLA/SARA. The scope of this investigation includes the review of available information from an interview with the current property owner, and conducting a comprehensive target survey.

II. Site Description, Operational History, and Waste Characteristics

Site Description

The Acme Brick Strip Mine site is located in the NE4 SE4 NE4 SEC 31 and SW4 NW4 SEC 32 T22N R14E Tulsa County, Oklahoma (Reference 1). The site has the coordinates of 36° 20' 45.59" north latitude and 95° 50' 51.28" west longitude (Reference 2). The site is located about a 1/2 mile south of the City of Collinsville. This site is estimated to be 50 acres in size and is located in both a rural and suburban area (Reference 3). Flanking the east side of the site are railroad tracks and "Old" U.S. Highway 169. On the other sides, the site is surrounded by agricultural lots (Reference 3). To the east of "old" highway 169 is a mobile home trailer park with six (6) trailers (Reference 3). A residence is located on-site on the former office building of the smelter operation on-site (Reference 3). The property owner, which lives on-site, is Francis Sharp (Reference 4). Her mailing address is Box 23, Collinsville Oklahoma (Reference 4). The on-site residence has an active water well, allegedly fifty (50) feet deep and having a water level of 35 feet (Reference 3). According to the resident, this well was drilled in 1942 (Reference 5).

Operational History

Located at the Acme Brick Strip Mines site is the former Tulsa Fuel & Manufacturing Company, smelters of zinc and roasters of lead (Reference 3). For this reason, the site will for the remainder of this report, be referred to as **Tulsa Fuel and Manufacturing Company (TFM).** According to the current property owner, the Tulsa Fuel & Manufacturing Co. began operating in 1914 and ceased operations in 1925 (Reference 3, 5). Prior use of the land before the smelting operation is unknown (Reference 5). The resident moved on-site on July 1, 1935 and has lived at this location up to the present (Reference 3). The former smelting operation utilized nine (9) furnaces, approximately one-hundred (100) feet in length, and believed to be fueled by natural gas from nearby wells (Reference 6). In addition, large amounts of ore were stored on-site in the northeastern area of the site, as well as a laboratory of some typed was utilized on-site (Reference 6). Also, a 2 million gallon capacity reservoir was used in

conjunction with a condenser room during smelting operations (Reference 6). In the surrounding area of the site, surface mining activity was considerable. Immediately south of the site was a surface mining operation about forty (40) acres in size (Reference 3, 7).

Waste Characteristics

The wastes of concern are those associated with the practice of smelting zinc and roasting of lead. Due to there being a laboratory on-site during the plant's operation, and no information as to how material in the laboratory were handled, possible waste associated with the laboratory are also of concern. As seen during the site reconnaissance, the majority of the site, about forty (40) acres, is covered with black smelter residue (Reference 3). The depth of this material is unknown. In addition, two (2) ponds in the northern area of the site and a surface water impoundment immediately south of the site are likely to contain surface water runoff from the site. Consequently, the smelter residue is mostly likely associated with sediments in these impoundments. Therefore, the impoundments are likely to be sources of waste too. The two (2) impoundments in the northern area of the site are about five (5) and seven (7) acres in size each; and the water-filled pit to the south of the site is about thirty (30) acres in size (Reference 7).

III. Pathway and Environmental Hazard Assessment

Groundwater

The site sits atop the Okemah-Parsons-Carytown soil complex (Reference 8). This complex is characterized as being found at depths up 68 inches below land surface, and a permeability ranging between 0.06 - 2.0 inches per hour (Reference 8). These soils are formed in loamy and clayey materials (Reference 8). Underlying this soil complex is the Seminole Formation. This formation is characterized as consisting of shale, sandstone, and thin coal beds (Reference 8). Underlying the Seminole Formation is the Nowata Formation. This formation consists of shale, minor sandstone, and limestone (Reference 8). Next is the Oologah Formation. It too consist of limestone and shale (Reference 8). Wells in the area of the site commonly yield only small amounts of fair-to-poor quality of water (Reference 8).

There are no public water supply wells within the four (4) mile study radius of the site (Reference 9). In addition, thirteen (13) private wells are located within the four (4) mile study radius, including the on-site and active private well (Reference 3, 10, 11). Populations served by these private wells are described below (Reference 10, 11, 12). The depth to groundwater ranges from five (5) to thirty (30) feet below ground surface (Reference 8). The City of Collinsville, located approximately 1/2 mile north of the site, utilizes Lake Oologah as its public water supply (Reference 13). The general vicinity outside the city's water service area is served by the Washington County Rural Water District No. 3 (Reference 14). Due to the unknown depth of waste on-site, particularly the large amount of smelter residue waste; groundwater users on-site are considered primary targets. The remaining wells within the study radius are considered secondary targets.

Distance from site (mi)	Estimated Population Served By Private Wells
On-site	* 2.0
0 - 1/4	0
1/4 - 1/2	0
1/2 - 1	0
1 - 2	** 4.86
2 - 3	** 9.72
3 - 4	** 14.58
TOTAL	**31.16 (no. Of primary targets = 2) (no. of secondary targets = 29.16)**

Sources: *References 10, 11, 12*

* primary targets
** secondary targets

Surface Water

The nearest perennial stream is about 0.75 miles northeast and downstream from the site, and is referred to as Blackjack Creek (Reference 15). Originating in the northeastern area of the site is an intermittent stream which drains into Blackjack Creek (Reference 3, 15 site recon and topo map). Immediately south of the site is a large water-filled pit most likely associated with the now inactive adjacent surface mining operations (Reference 3, 15). It is likely that this water-filled pit is in communication with the on-site intermittent stream, and is likely to receive surface water runoff from the site (Reference 15). Consequently, release to surface water is suspected. However, there are no surface water intakes within the fifteen (15) mile target distance (Reference 16). The probable point of entry (PPE) into Blackjack Creek is located in the NE4 NE4 NE4 SEC 32 T22N R14E (Reference 15). The 15-mile target distance ends in the Caney River, specifically the NE4 NE4 NW4 SEC 20 T22N R15E (Reference 7). The normal annual total precipitation in the site's region is about forty (40) inches per year (Reference 17). The site does not lie within the 500 year flood plain (Reference 18).

There may be as much as thirty (30) miles of wetland frontage area associated with the surface water pathway (Reference 7). Surface waters considered to be fisheries are The Caney River and Blackjack Creek. The fisheries are considered primary targets.

Habitats of the endangered/threatened species listed below are known to be in Tulsa and/or Rogers county(s) (Reference 19). Due to the fact that the site is located in a somewhat rural area, the potential exists for these species to be on-site, and are considered primary targets (Reference 3). In addition, there has been an occurrence of the Prairie Mole Cricket within four (4) miles of the site (Reference 20).

Species	*Federal Status*
Peregrine falcon	Endangered
Bald eagle	Endangered
Interior least tern	Endangered
Piping plover	Threatened
Prairie mole cricket	Proposed Threatened
Paddlefish	Candidate
Arkansas River shiner	Candidate
Arkansas River speckled chub	Candidate
Texas horned lizard	Candidate
White-faced ibis	Candidate
Long-billed curlew	Candidate
Western Snowy plover	Candidate
Migrant loggerhead shrike	Candidate
Ozark chinquapin	Candidate
Western prairie fringed orchid	Threatened
Arkansas darter	Candidate
Alligator snapping turtle	Candidate
Ferruginous hawk	Candidate

Soil Exposure

Substances of concern in this pathway are the unconfined soils and smelter residues most likely contaminated with heavy metals (Reference 3). Additionally, other substances associated with the on-site laboratory, and condenser room may also be of concern. As in all preliminary assessments, soil contamination is always assumed. There is an on-site residence with the population of two (2) (Reference 3). Since the site is located in a somewhat rural area, it is assumed in this investigation that the terrestrial species listed under the surface water pathway may exist on-site (Reference 3).

Air

The site is sparsely vegetated and vegetation present appears stressed. As mentioned earlier, the site is mostly covered with what appears to be a type of black smelter residue (Reference 3). Consequently, particulates associated with these residues would be likely to become sus-

pended in the atmosphere. In addition, due to the fact that the smelter operated in the early 1900s, thus lacking air emission standards, suspended particulates and "fallout" may be found in an extended area from the site. The estimated population and wetland acreage within four (4) miles from the site is described below (References 7, 21), and are considered primary targets due to the information stated previously. It is assumed that the habitats of endangered/threatened species listed under the surface water pathway may be within the four mile study radius, and potentially on-site since the site consist of several large trees, impoundments, and some grasses (Reference 3).

Distance from site (mi)	Est. Population	Est. Wetland Acreage
On-site	2	3
0 - 1/4	29.16	12
1/4 - 1/2	99.63	13
1/2 - 1	1322	30
1 - 2	3241	110
2 - 3	4883	249
3 - 4	311	403
TOTAL	**9887.79**	**820**

IV. Summary and Conclusion

The Tulsa Fuel & Manufacturing Company allegedly began operating in 1914 and ceased operation in 1925. Due to the unknown depth of waste on-site, ground water in the vicinity may have been affected. Surface water has a potential for contamination due to the high potential for runoff to be discharged into on-site and off-site streams, thus posing a threat to the environment and to human targets through food chain contamination. Even though controlled access does exist, contamination appears to be wide spread on-site and human exposure to contaminated soils exists. In addition, since the site is not adequately covered by well established vegetation or by other means and has operated as a smelter, an air release is suspected.

At the time of the site discovery project, this site was referred to as Acme Brick Strip Mines. During the course of the Preliminary Assessment, it was found that Tulsa Fuel & Manufacturing operated the smelting operation on-site. For this reason, it is recommended that this site be referred to as the **Tulsa Fuel & Manufacturing Company.**

RECORD OF COMMUNICATION

Date: October 30, 1992

To: Acme Brick Strip Mine PA file

From: David S. Crow, OSDH Environmental Specialist DSC

Subject: Acme Brick Strip Mine site reconnaissance

On October 29, 1992, Richard Brooks and myself travelled to Collinsville for the purpose of conducting an on/off-site reconnaissance of the above site. We first stopped at the Tulsa City/County Health Department to meet Mark Flemming. He accompanied us to the site. At the time of our reconnaissance, the weather was cool and drizzly.

Upon reaching the site, we met Ms. Francis Peters, the current owner of the site, and who we assume to be her husband. She once again asked why we were investigating her property. I explained to her that this site had been brought to our attention by a report done by the Department of Conservation in 1983. Based on information in the 1983 report, we determined that the smelter operation needed to be addressed because of a possible risk to public health and to the environment.

Ms. Peters and her husband informed us that their house is located on the foundation of the former office of the site. Also, they told us that they have a well located in their house that is about fifty (50) deep. Depth to groundwater is estimated to be about thirty-five (35) feet. Also, they told us that there is a water well west of their house that is about 200 feet deep. Ms. Peters showed us an insurance map of the site. This map showed in some detail, the entire site. According to this map, the name of the smelting operation is **Tulsa Fuel & Manufacturing Company, smelters of zinc and roasters of lead.** The map shows (in general terms) nine (9) furnaces about 100 feet in length, a 2 million gallon capacity reservoir, ore bins, a laboratory, mechanical building, condenser room, and an office. Also, from this map it appears that the furnaces were fueled by natural gas. In addition, since coal mining was in the area, we believe that these furnaces may also have been fueled by coal.

Ms. Peters further informed us that the smelter ceased operation in 1925, and that she moved to her present location, on-site, on July 1, 1935. Her husband told us that at one time he put some ducks in a pond east of their house, and the ducks died within a few days. He also said that horses, particularly colts, would not live on-site. The Peter's thoughts were that smelter waste was in the ponds and that the animals died as a result of this. I asked the Peter's how much land they owned on-site. They replied that they owned about 100 acres and that the smelter used about 80 acres of this 100 acres.

Next, we began walking most of the site. In the area of the Peter's home there appeared to be no stressed vegetation. However, the rest of the site is mostly void of vegetation, with the exception of some large trees, cattails, some grasses, and some type of moss growing in a few areas. Most of the site is covered with a black, volcanic ash looking material. There are two ponds in the northern area of the site. One of these believed to be the one where the ducks died. South of these ponds is what appears to be remnants of an old and large foundation. Also in this area is part of a demolished large concrete vent stack. At what appears to be the southern edge of site, is a large rectangular water impoundment. This

appears to be part of the former coal strip mining area that was located immediately south of the site. At the time of our reconnaissance, we saw two fish in these waters. Throughout the site there are mounds of soil, and also of the black volcanic ash looking material.

After lunch, Richard and I visited the Collinsville library to possibly locate any historical information about the site. We browsed through historical newspaper clippings, but found nothing significant. The librarian said that we should contact John Wright, the former owner of the city's newspaper, for possible information concerning the site. Next, we surveyed the 1/4 mile radius of the site for the number of residences. As a result of our efforts, we determined that there are about twelve (12) residences within 1/4 mile of the site. While surveying the nearby area, it seems that surface water sheet flow would flow in a east southeasterly direction. We concluded our reconnaissance at about 3:00 p.m..

V. Figures

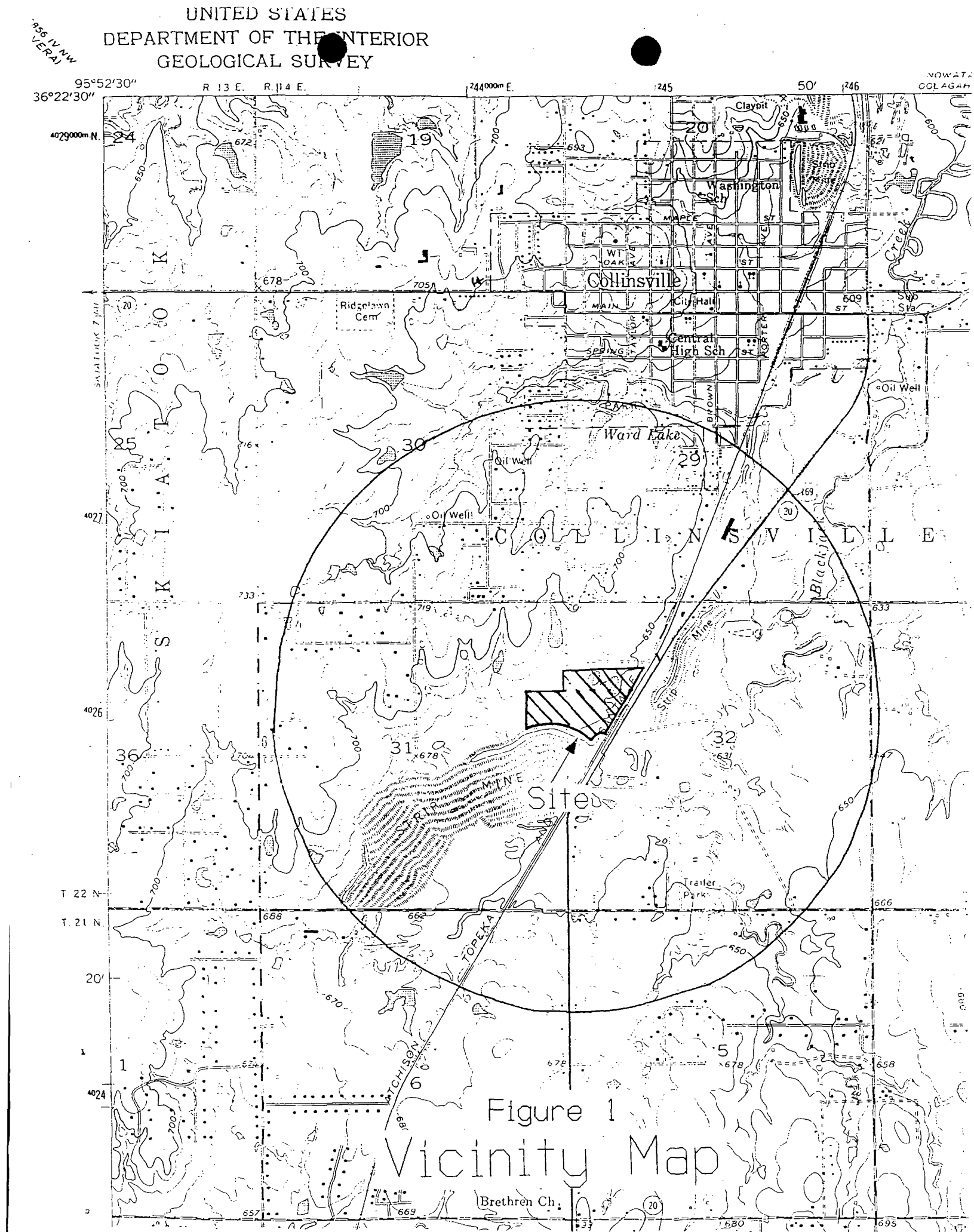


Figure 1

Vicinity Map

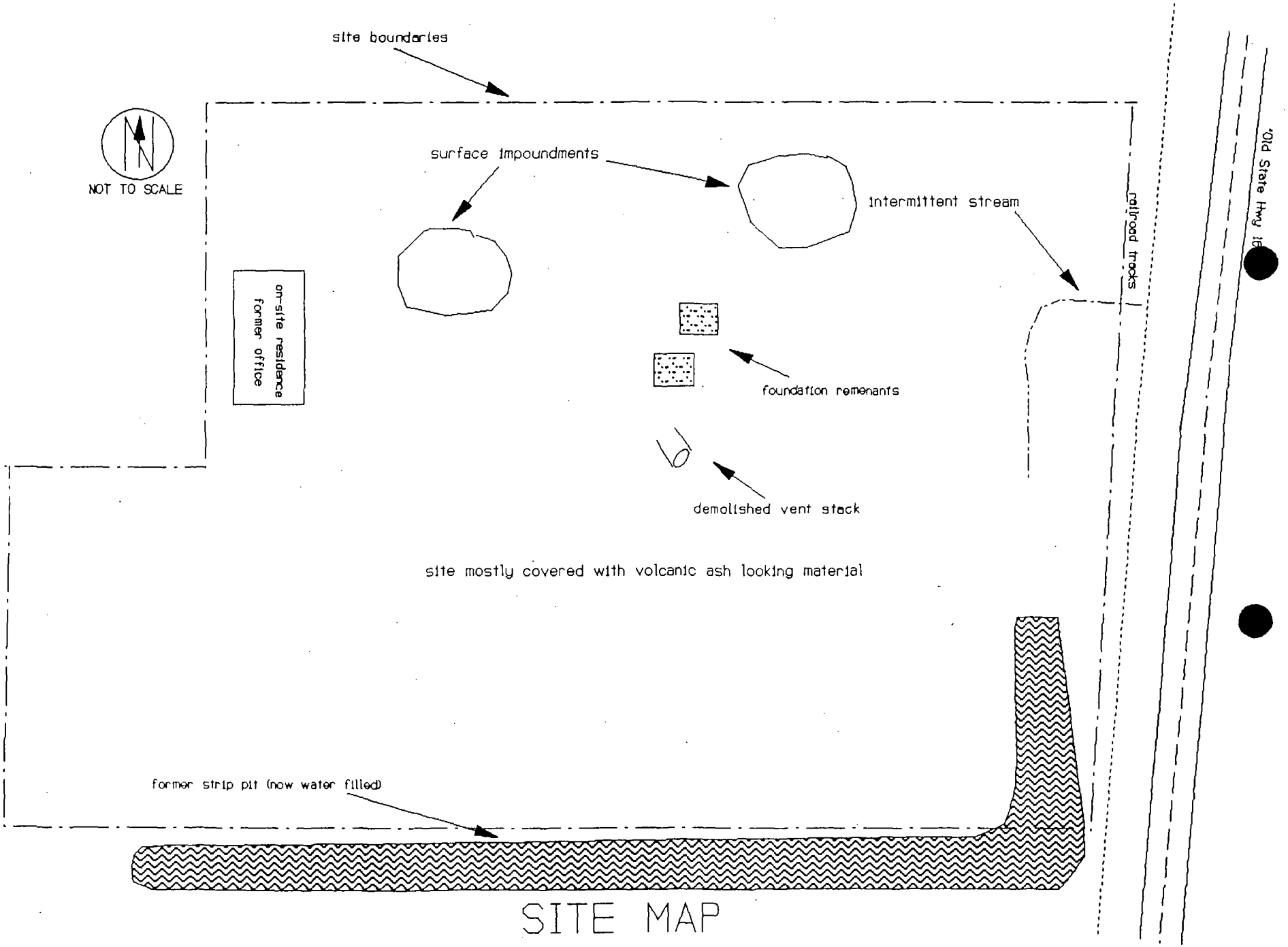

site boundaries
NOT TO SCALE
surface impoundments
intermittent stream
railroad tracks
Old State Hwy 16
on-site residence
former office
foundation remenants
demolished vent stack
site mostly covered with volcanic ash looking material
former strip pit (now water filled)
SITE MAP

Figure 2

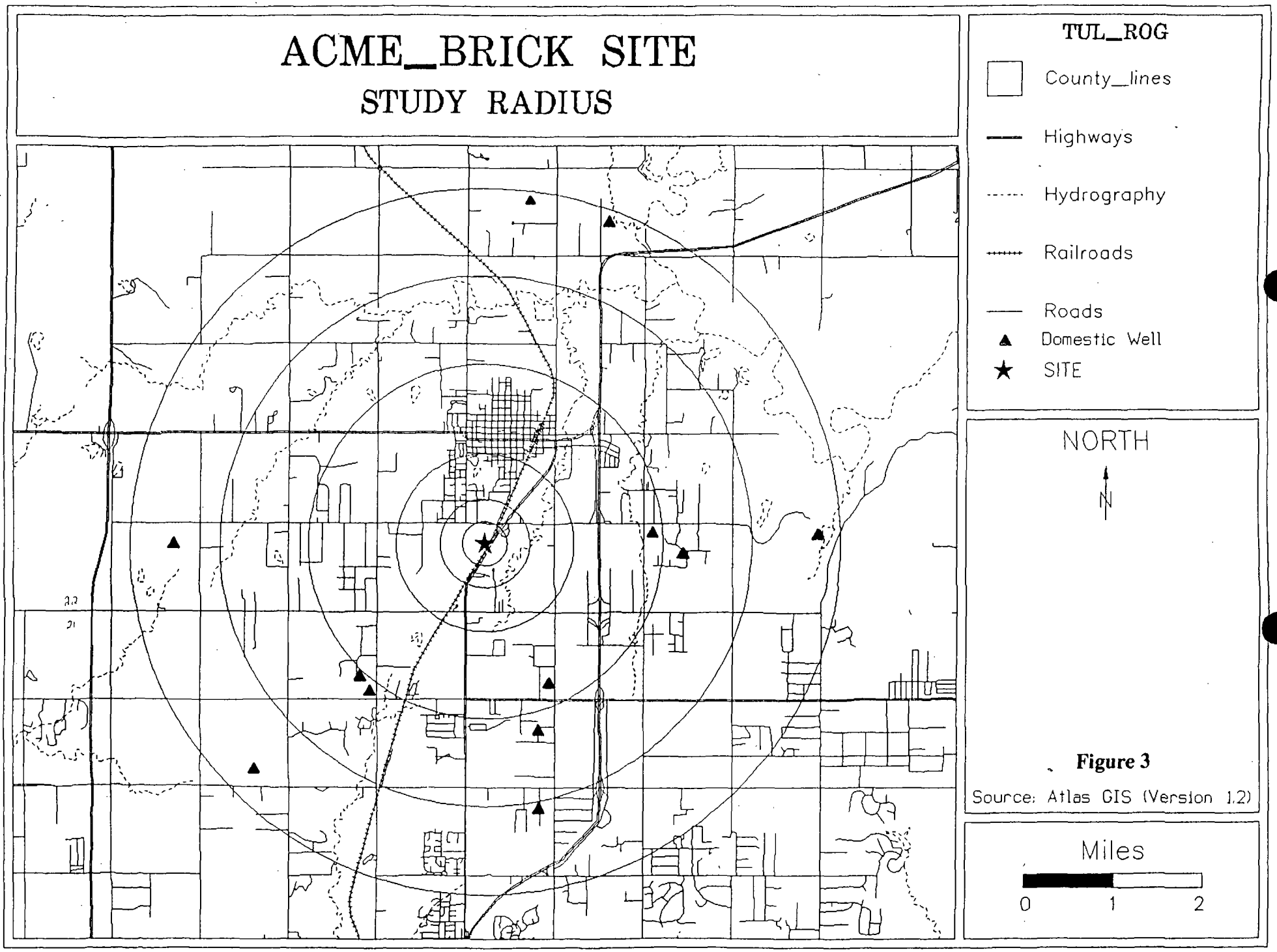


Figure 3

Source: Atlas GIS (Version 1.2)

VI. Photodocumentation

Photographer: David S. Crow **Witness:** Richard L. Brooks
Date: October 29, 1992 **Direction:** North

Comments: Photograph #1 (matches slide 33, roll #2) On-site residence. Residence is located on former foundation of the office associated with the past smelter operations. A Private drinking water well is located at this residence.

D.S.C

Photographer: David S. Crow **Witness:** Richard L. Brooks

Date: October 29, 1992 **Direction:** East

Comments: Photograph #2 (matches slide #5, roll 1) Photo shows foundations associated with the smelter operation. This general area is covered with black smelter residue (particulates), with little or no vegetation.

Photographer: David S. Crow **Witness:** Richard L. Brooks
Date: October 29, 1992 **Direction:** Southwest

Comments: Photograph #3 (matches slide #11, roll 1) Photo shows southern area of smelter operation. The general area is covered with black smelter residue, and remnants of fire brick. Also, occasional patches of vegetation are seen.

Photographer: David S. Crow
Date: October 29, 1992

Witness: Richard L. Brooks
Direction: Southwest

Comments: Photograph #4 (slide #13, roll 1) Photo shows water-filled pit believed to be a pit associated with the strip mining operation south of the site. The depth of this pit is unknown, but is considered to be used for recreational fishing.

Photographer: David S. Crow DSC **Witness:** Richard L. Brooks RLB
Date: October 29, 1992 **Direction:** Southwest

Comments: Photograph #5 (matches slide #17, roll 1) Photo shows a close up view of the material found throughout most of the site. Objects seen in the picture are clay pots, furnace brick, and black smelter residue. This photo is representative of the majority of the site.

Photographer: David S. Crow D.S.C **Witness:** Richard L. Brooks RLB
Date: October 29, 1992 **Direction:** North

Comments: Photograph #6 (matches slide #3, roll 1) This photo shows what is believed to be the 2 million gallon reservoir associated with the smelter operation. This reservoir is located in the northern part of the site. The impoundment appears to be partially back-filled with smelter residue and other wastes associated with the site.

Site: Acme Brick, Collinsville
Photographer: David Crow
Witness: Richard Brooks
Date: 10/29/92
roll 1
24
Site: Acme Brick, Collinsville
Photographer: David Crow
Witness: Richard Brooks
Date: 10/29/92 roll 1
11
Site: Acme Brick, Collinsville
Photographer: David Crow
Witness: Richard Brooks
Date: 10/29/92 roll 1
Tulsa Fuel & Manf
Collinsville Ok
Site: Acme Brick, Collinsville
Photographer: David Crow
Witness: Richard Brooks
Date: 10/29/92 roll 1
Site: Acme Brick, Collinsville
Photographer: David Crow
Witness: Richard Brooks
Date: 10/29/92 roll 1

VII. List of References

1. U.S. Environmental Protection Agency, *Potential Hazardous Waste Site Identification* form 2070-8 (5-8) for the Acme Brick Strip Mines site.
2. U.S. Environmental Protection Agency. *Standard Operating Procedure to Determine Site Latitude and Longitude Coordinates.* 1991. Calculation Worksheet for the Acme Brick Strip Mine site, Tulsa County, OK.
3. David S. Crow, OSDH. *Memorandum: On/Off-site Reconnaissance of the Acme Brick Strip Mine, Tulsa County, OK.* October 30, 1992.
4. David S. Crow, OSDH. *Record of Communication: Mike Sharp, Department of Mines, Oklahoma Conservation Commission.* October 23, 1992.
5. David S. Crow, OSDH. *Record of Communication: Francis Peters, current property owner of site.* November 9, 1992.
6. Sanborn Fire Insurance Map for *Tulsa Fuel & Manufacturing Company*, Collinsville, Oklahoma. February 1919.
7. Karen Khalafian, OSDH. *Wetland Acreage Worksheet, and accompanied references.* November 5, 1992.
8. David S. Crow, OSDH. *Memorandum: Groundwater and Hydrogeological information concerning the Acme Brick Strip Mine site, Tulsa County, OK.* November 4, 1992.
9. David S. Crow, OSDH. *Record of Communication: Public Water Supply inquiry to Terry Clingman, OSDH Water Quality Service.* October 7, 1992.
10. Request letter to Gary Glover, Oklahoma Water Resources Board. *Request for private and municipal well within study radius of site.* October 5, 1992.
11. Response fax from Scott Christensen, USGS Water Resources Division, *groundwater users within study radius of site.* November 10, 1992.
12. U.S. Department of Commerce. *Census Data for populations in Tulsa and Rogers Counties.* 1990.
13. David S. Crow, OSDH. *Memorandum: Public water supply information for the City of Collinsville.* November 4, 1992.
14. Washington County Rural Water District No. 3, *service map.*
15. U.S. Geological Survey. 15' Quadrangle map of Collinsville, OK. 1956.
16. David S. Crow, OSDH. *Record of Communication: Surface water intakes within 15-miles of probable point of entry (PPE). Gene Dousett, Oklahoma Water Resources Board.* October 12, 1992.
17. United States Environmental Protection Agency. *Uncontrolled Hazardous Waste Site Ranking System Users Manual.* 1984.

18. David S. Crow, OSDH. *Request letter: Flood potential for Acme Brick Strip Mine site. Ken Morris, Oklahoma Water Resources Board.* October 1, 1992.

19. U.S. Fish and Wildlife Service. *Oklahoma Federal Listed of Proposed and Candidate Threatened and Endangered Species for Tulsa and Rogers counties.* June 1990.

20. Ian Butler, Oklahoma Biological Survey. Response letter from request made by Richard L. Brooks, OSDH, concerning possible endangered species at the Acme Brick Strip Mine site

21. Richard L. Brooks, OSDH. Geographical Exposure Modeling System (GEMS) for population distribution within the Acme Brick Strip Mine site's study radius. October 6, 1992.

VIII. References

Reference 1

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE IDENTIFICATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OKD	

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER				
Acme Brick Strip Mines	1/2 mi S. of Collinsville				
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 COUNTY**	**07 COUNTY CODE**	**08 CONG DIST**
Collinsville	OK	74021	Tulsa		

09 DIRECTIONS TO SITE (Starting from nearest public road)

1/2 mile S. of Collinsville

III. RESPONSIBLE PARTIES

01 OWNER (if known)	02 STREET (Business, residential, mailing)		
Francis Sharp (on site)	Box 23 Collinsville OK.		
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 TELEPHONE NUMBER**
Collinsville	OK	74021	(b) (6) [redacted]
07 OPERATOR (if known and different from owner)	**08 STREET (Business, residential, mailing)**		
none			
09 CITY	**10 STATE**	**11 ZIP CODE**	**12 TELEPHONE NUMBER**
			( )

13 TYPE OF OWNERSHIP (Check one)

☒ A. PRIVATE ☐ B. FEDERAL: ____________ (Agency name) ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL

☐ F. OTHER: ____________ (Specify) ☐ G. UNKNOWN

IV. HOW IDENTIFIED

01 DATE IDENTIFIED: / / 1983 (MONTH DAY YEAR)

02 IDENTIFIED BY (Check all that apply)

☐ A. CITIZEN COMPLAINT ☐ B. INDUSTRY ☐ C. STATE/LOCAL GOVERNMENT ☐ D. AERIAL RECONNAISANCE

☐ E. RCRA INSPECTION ☐ F. SURFACE IMPOUNDMENT ASSESSMENT ☐ G. OTHER EPA IDENTIFICATION

☒ H. OTHER Department of Conservation (Specify)

V. SITE CHARACTERIZATION

01 TYPE OF SITE (Check all that apply)

☐ A. STORAGE ☐ B. TREATMENT ☐ C. DISPOSAL ☐ D. UNAUTHORIZED DUMPING ☒ E. OTHER inoperative smelter (Specify)

02 SUMMARY OF KNOWN PROBLEMS (Provide narrative description)

inoperative smelting operation (zinc + lead)

03 SUMMARY OF ALLEGED OR POTENTIAL PROBLEMS (Provide narrative description)

wastes of smelting operation of concern

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)		03 TELEPHONE NUMBER
			( )
04 PREPARED BY	**05 AGENCY**	**06 ORGANIZATION**	**07 TELEPHONE NUMBER** / **08 DATE**
[signature]	EPA Reg VI		(214) 655-6740 / 12-8-92

Reference 2

APPENDIX E

STANDARD OPERATING PROCEDURE TO DETERMINE SITE LATITUDE AND LONGITUDE COORDINATES

HAZARDOUS SITE EVALUATION DIVISION
SITE ASSESSMENT BRANCH
U.S ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C.

September 1991

LATITUDE AND LONGITUDE CALCULATION WORKSHEET #2
LI USING ENGINEER'S SCALE (1/60)

SITE NAME: Acme Brick Strip Mines CERCLIS #: ____

AKA: ____ SSID: ____

ADDRESS: ____

CITY: ____ STATE: Ok ZIP CODE: ____

SITE REFERENCE POINT: center of the site

USGS QUAD MAP NAME: Collinsville TOWNSHIP: [illegible] N/S RANGE: 14 E/W

SCALE: 1:24,000 MAP DATE: 1956 SECTION: NE 1/4 SE 1/4 NE 1/4 sec. 3

SW 1/4 NW 1/4

MAP DATUM: (1927) 1983 (CIRCLE ONE) MERIDIAN: ____

COORDINATES FROM LOWER RIGHT (SOUTHEAST) CORNER OF 7.5' MAP (attach photocopy):

LONGITUDE: 95 ° 45 ' 00 " LATITUDE: 36 ° 15 ' 00 "

COORDINATES FROM LOWER RIGHT (SOUTHEAST) CORNER OF 2.5' GRID CELL:

LONGITUDE: 95 ° 50 ' 00 " LATITUDE: 36 ° 20 ' 00 "

CALCULATIONS: LATITUDE (7.5' QUADRANGLE MAP)

A) NUMBER OF RULER GRADUATIONS FROM LATITUDE GRID LINE TO SITE REF POINT: 138

B) MULTIPLY (A) BY 0.3304 TO CONVERT TO SECONDS:

A x 0.3304 = 45 . 59 "

C) EXPRESS IN MINUTES AND SECONDS (1'= 60"): 00 ' 45 . 59 "

D) ADD TO STARTING LATITUDE: 36 ° 20 ' 00 . 00 " + 00 ' 45 . 59 =

SITE LATITUDE: 36 ° 20 ' 45 . 59 "

CALCULATIONS: LONGITUDE (7.5' QUADRANGLE MAP)

A) NUMBER OF RULER GRADUATIONS FROM RIGHT LONGITUDE LINE TO SITE REF POINT: 154

B) MULTIPLY (A) BY 0.3304 TO CONVERT TO SECONDS:

A x 0.3304 = 50 . 88 "

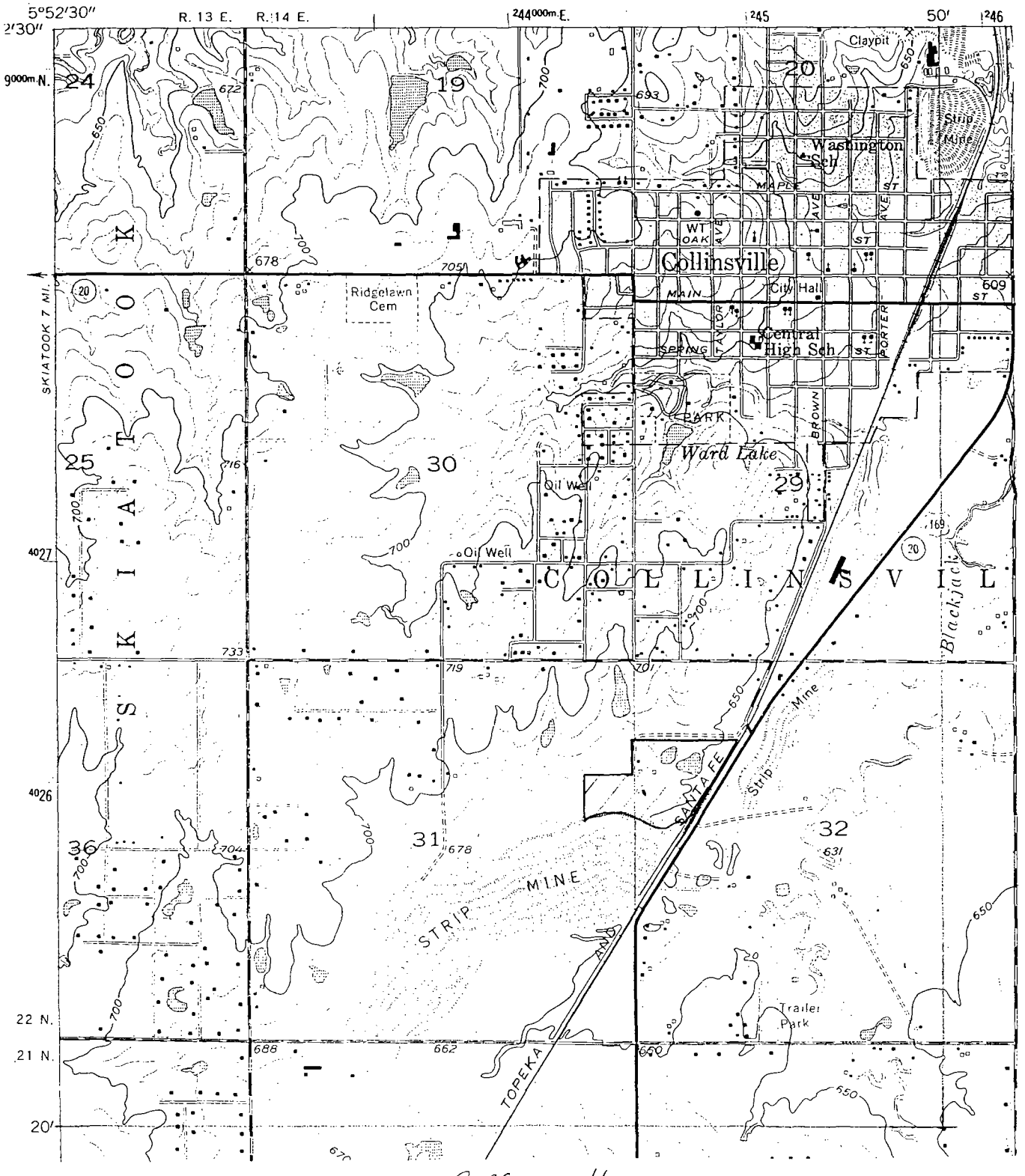
C) EXPRESS IN MINUTES AND SECONDS (1'= 60"): 00 ' 51 . 28 "

D) ADD TO STARTING LONGITUDE: 95 ° 50 ' 00 . 00 " + 00 ' 51 . 28 =

SITE LONGITUDE: 95 ° 50 ' 51 . 28 "

INVESTIGATOR: Karen Khalafian DATE: [illegible]

SITE NAME: Acme Brick Strip Mines NUMBER: _____

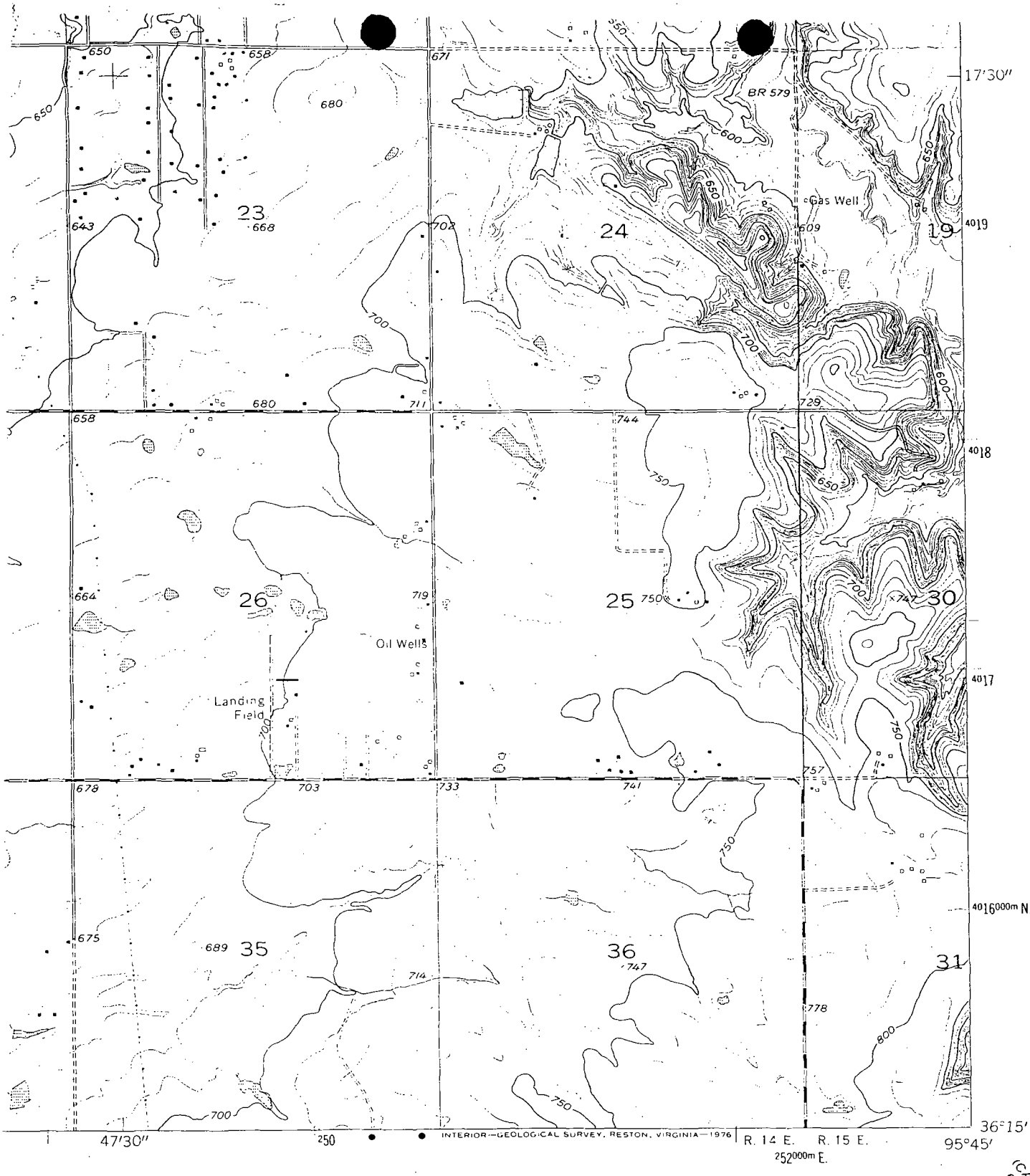


TOPOGRAPHIC MAP QUADRANGLE NAME: Collinsville SCALE: 1:24,000

COORDINATES OF LOWER RIGHT-HAND CORNER OF 2.5-MINUTE GRID:

LATITUDE: 36 ° 22 ' 00 " LONGITUDE: 95 ° 50 ' 00 "

*U.S GOVERNMENT PRINTING OFFICE: 1991-548-187/40605



COLLINSVILLE, OKLA.

N3615—W9545/7.5

1956
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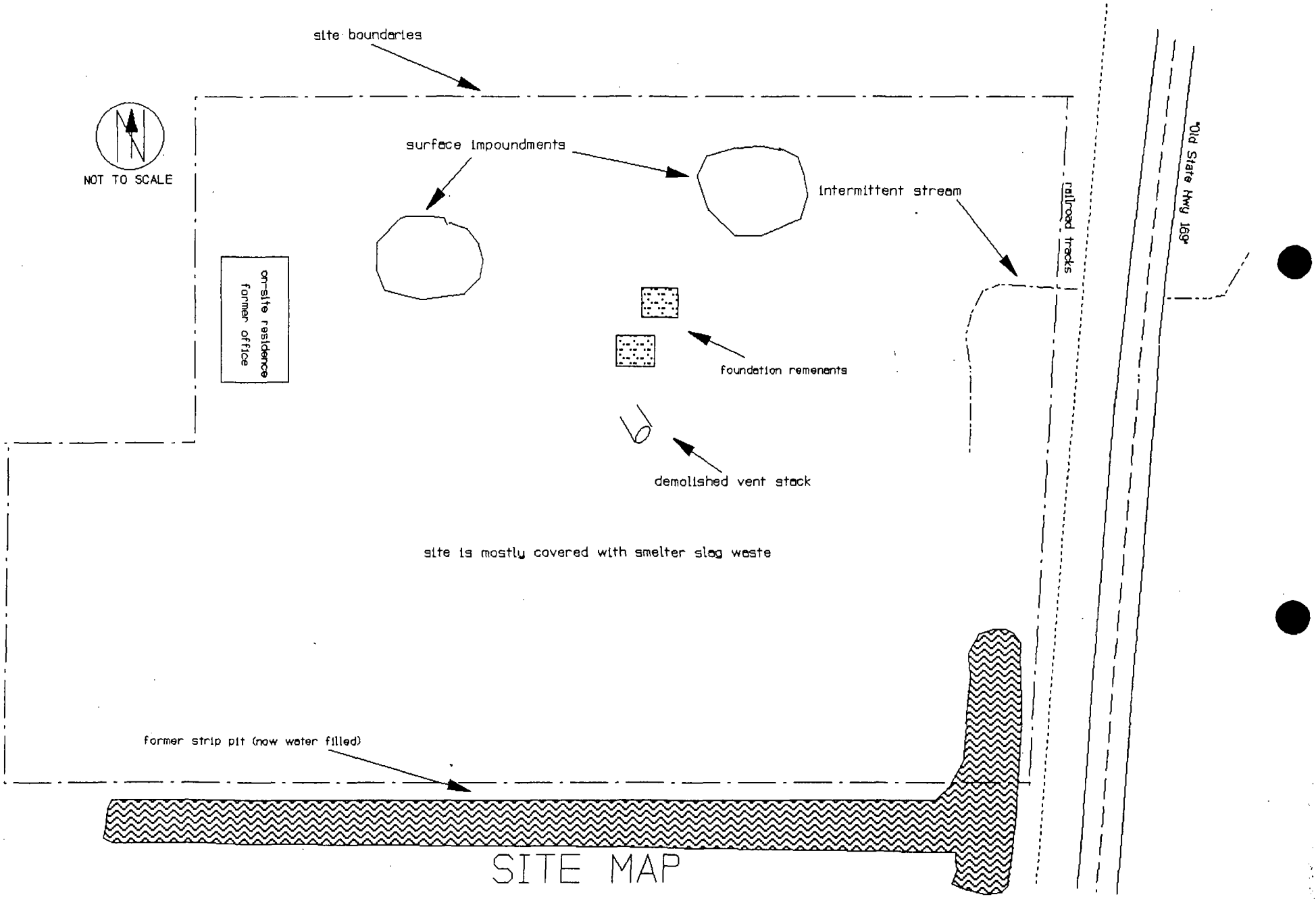
AMS 6856 IV SE—SERIES V883

IA 22092

F-62

Reference 3


site boundaries
NOT TO SCALE
surface impoundments
intermittent stream
railroad tracks
Old State Hwy 169
on-site residence
former office
foundation remenants
demolished vent stack
site is mostly covered with smelter slag waste
former strip pit (now water filled)

SITE MAP

Reference 4

RECORD OF COMMUNICATION

To:	From:	Date:	Time:
Acme Brick PA PA file	David S. Crow Environmental Specialist	10/23/92	3:40 p.m

On October 23, 1992, I spoke to Mr. Mike Sharp of the Abandoned Mine Land Reclamation Program - Conservation Commission, via telephone concerning any information his office might have in regards to the property owner of the Acme Brick site. After checking his files, he found that Francis Sapp (aka Francis Peters) is the current property owner. The owner's mailing address is Box 23, Collinsville, OK 74021-003. The telephone number is (b) (6) He verified this information with the Tulsa Tax Assessor's office.

Mr. Sharp's office number is (405) 521-2384.

Reference 5

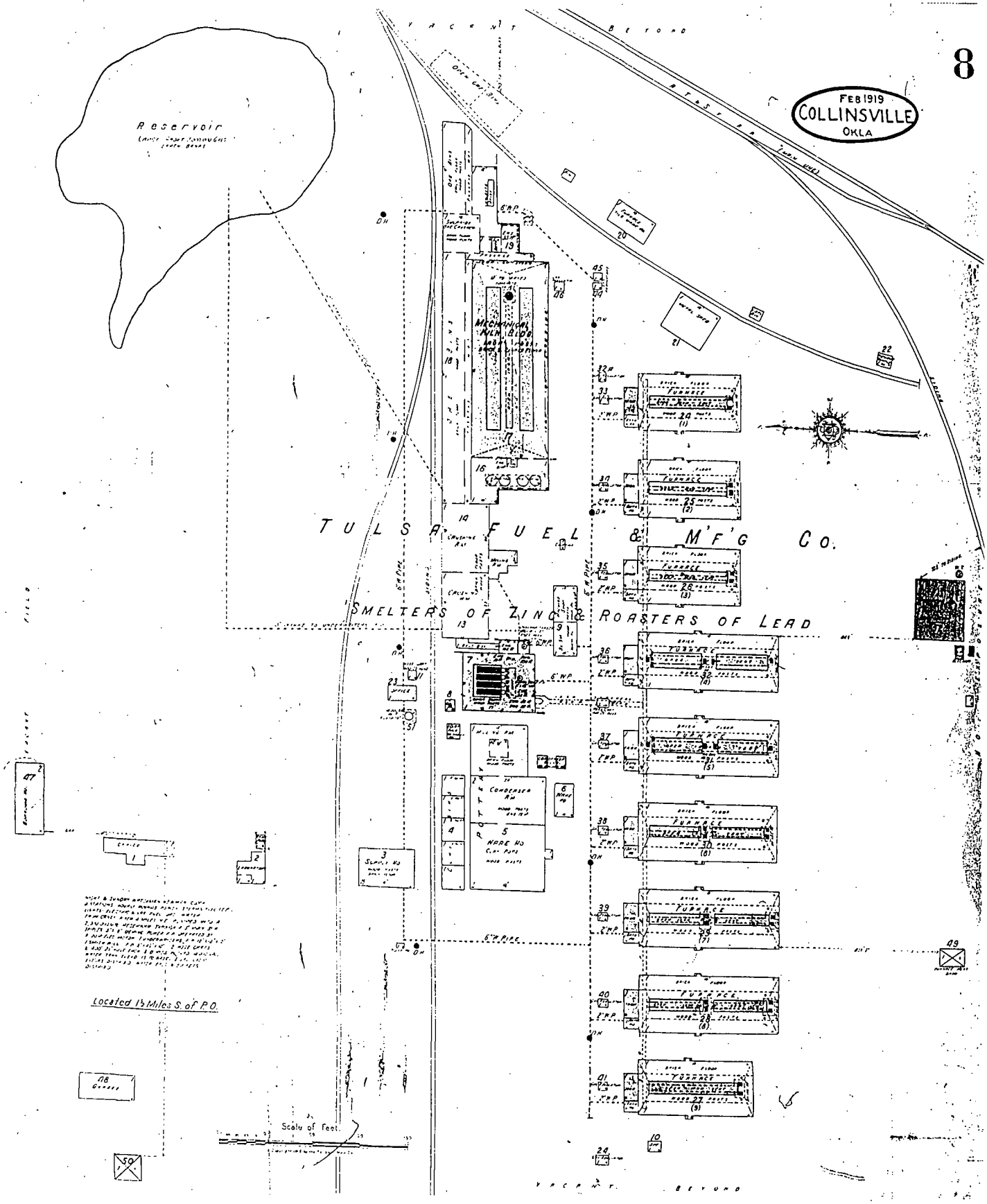
OSDH RECORD OF COMMUNICATION

To: Acme Brick Strip Mine PA	From: David S. Crow DSC Environmental Specialist	Date: 11/9/92	Time: 0930

On the above stated date, I spoke to Ms. Francis Peters, the current property owner of the Tulsa Fuel & Manufacturing site in Collinsville. I asked her if she knew when the smeltering operation began. According to Ms. Peters, the smelter began operating sometime in 1914. I also asked her if she knew what the land was used for prior to the smelter. She knew nothing of any prior use of the land. I also told her that in the near future, we would like to take a water sample of her well at her house. However, we are unsure when specifically we can sample the well due to the backlog of samples at the State laboratory. Ms. Peters told me that the well at their house was drilled in 1942.

Reference 6

FEB 1919
COLLINSVILLE
OKLA



INSPECTION REPORT REVIEW
POTENTIAL HAZARDOUS WASTE SITE

SITE NAME : ACME BRICK STRIP MINES
LOCATION : COLLINSVILLE, OK
SITE NUMBER: OKD 987 096 195
SURVEY DATE: __/__/__ INSPECTED BY: _ STATE _ FIT _ TAT OTHER: _____

LABORATORY : ___CLP ___EPA ___OTHER_____

RECEIVED FROM: _____ DATE RECEIVED: __/__/__

SAMPLE TYPE(s):

SOIL	SURFACE WATER	GROUND WATER	DRINKING WATER
off / on -site	off / on -site	off / on -site	off / on -site

CONTAMINANT(s): Organics Inorganics Radionuclides Microbiological

FOLLOW UP (Y/N):

	N Locate Drinking Water Sources
Y (Re)Sampling Requested	Y Keep Site Active ("N"=No Further Action)
N Further Action is URGENT	Y Concur with Report Recommendations

SUMMARY:

Preliminary assessment. The concerns are those associated with zinc smelting and lead roasting. There are no public water supply wells located within the 4-mile radius target area. However, there are 13 private wells (including 1 on-site) within this target area. We concur with the recommendation of a Site Inspection and a PREscore to adequately assess the the risk to human health this site may pose.

Michael McCarland 3/31/93
ENGINEER/REVIEWER

Concurrence:
P. Warren Norris 3/31/93

SITE NAME : ACME BRICK STRIP MINES

SITE LOCATION: COLLINSVILLE, OK

SITE NUMBER : OKD987096195

FILE LOG # : 186

ROUTE SLIP

HAZARDOUS WASTE SITE - INSPECTION REPORT

	INITIALS	DATE	TIME (HOURS)
1. MARK MCCASLAND	MEM	3/31/93	-0-
2. ~~WARREN NORRIS~~	[illegible]	3/31/93	—
3. JO TAYLOR (Cover memo, Xerox copies of report, log out of file, file) (Copies to Hickam, Wright 6H-ES)			

FILE CODE: SFD-24-1-4

BOOK REGISTER LOG #: 1876

EPA **POTENTIAL HAZARDOUS WASTE SITE IDENTIFICATION**

REGION: VI | SITE NUMBER: OKD987096195

NOTE: The initial identification of a potential site or incident should not be interpreted as a finding of illegal activity or confirmation that an actual health or environmental threat exists. All identified sites will be assessed under the EPA's Hazardous Waste Site Enforcement and Response System to determine if a hazardous waste problem actually exists.

A. SITE NAME: Acme Brick Strip Mines

B. STREET (or other identifier): U.S. Hwy 169

C. CITY: Collinsville

D. STATE: OK

E. ZIP CODE: 74021

F. COUNTY NAME: Tulsa 143

G. OWNER/OPERATOR (if known)

1. NAME: Unknown

2. TELEPHONE NUMBER:

H. TYPE OF OWNERSHIP (if known)

☐ 1. FEDERAL ☐ 2. STATE ☐ 3. COUNTY ☐ 4. MUNICIPAL ☐ 5. PRIVATE ☒ 6. UNKNOWN

I. SITE DESCRIPTION

Most of the site is covered with what appears to be "spoil" from past surface mining operations. Also on-site there are two surface impoundments filled with water. The site is bordered to the east by railroad tracks and "old" US highway 169. The legal description is NE4 SE4 NE4 SEC 31 and SW4 NW4 SEC 32 T22N R14E.

J. HOW IDENTIFIED (i.e., citizen's complaints, OSHA citations, etc.): OSDH site discovery project.

K. DATE IDENTIFIED (mo., day, & yr.): 7/28/92

L. SUMMARY OF POTENTIAL OR KNOWN PROBLEM

Wastes of concern appear to be waste associated with past surface mining operations. These wastes may be associated with the surface impoundments and spoil throughout the site.

M. PREPARER INFORMATION

1. NAME: David S. Crow, ~~OSDH~~ SC

2. TELEPHONE NUMBER: (405) 271-7099

3. DATE (mo., day, & yr.): 9/2/92

EPA Form 2070-8 (5-80)

7/28/92
DSC

OSDH SITE DISCOVERY PROJECT CHECKLIST

Site Name: Acme Brick Strip Mines

Site Location:
Address _____
City Collinsville
County Tulsa
Legal Sec 29, 31, 32 T20N R14E
Latitude/ Longitude _____
(S.O.P. attached)

Site Status:
Active ___ (if active, enter number of workers seen _____)
Inactive ✓

Site Description:
Is waste evident (y/n) y, if so circle type(s) below -

pile(s) surface water impoundment(s) contaminated soil(s)

drum(s) tank(s) other _____

What other important structures not associated with the above waste(s) are seen onsite? _____

Setting: (check all that apply)
Rural ✓ or Urban ___
Industrial/ Commercial ✓
Agricultural ✓
Residential ___

OSDH SITE DISCOVERY PROJECT CHECKLIST -cont-

Targets: (circle all that are nearby the site, i.e. within a 1/4 mile)

Residence(s) Daycare center(s) Schools(s) Workers(s)

Wetland(s) Stream(s) Lake(s) Pond(s) Municipal well(s)

Private well(s) Endangered and/or threatened species Park(s)

Other_____

Additional Comments:

Attachments: Photodocumentation and S.O.P.
Other _____

Site Discovery Photodocumentation

Site Name: Acme Brick Strip Mines
Site Type: Lead and Zinc Smelters
Photographer: Richard Brooks, OSDH
Date Taken: July 28, 1992

Reference 7

WETLAND ACREAGE WORKSHEET

SITE: Acme Brick Strip Mine PA site, Collinsville, Oklahoma.

Listed below are the estimated wetland acreage within four miles of the stated site. The acreages was derived by summing all designated wetland areas for each study radius with the use of the "Wetland Acreage Guide" of the appropriate inventory maps.

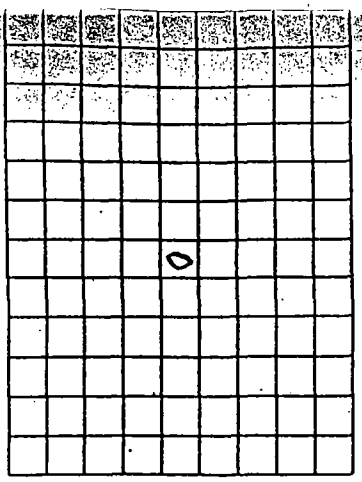
STUDY RADIUS (mi)	ESTIMATED WETLAND SIZE (acres)
On-site	3
0 - 1/4	12
1/4 - 1/2	13
1/2 - 1	30
1 - 2	110
2 - 3	249
3 - 4	403
TOTAL	**820**

Source of Information:

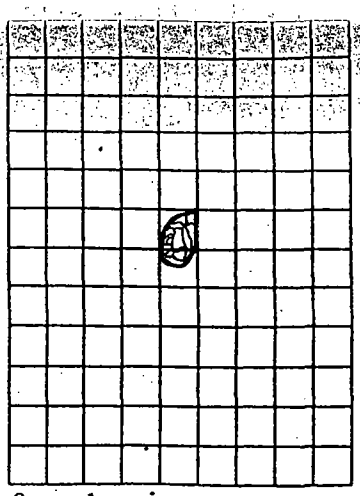
U.S. Department of Interior. *National Wetlands Inventory Quadrangle Maps:*

1. Vera, OK
2. Collinsville, OK
3. Oologah, OK
4. Tulsa SW, OK
5. Sperry, OK
6. Collinsville, OK

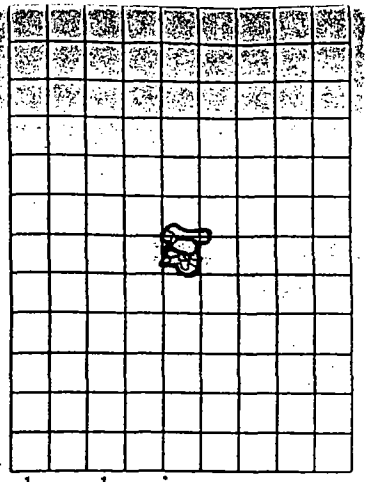
Compiled by: Karen Malafarina Date: 11/5/92



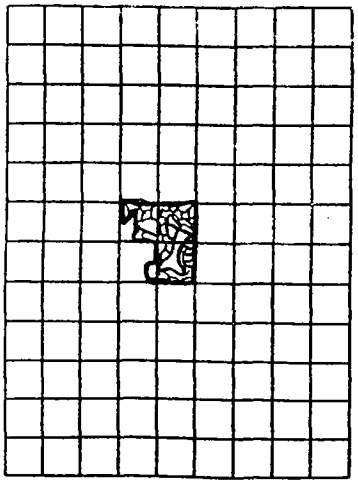
On-site
about 3 acres



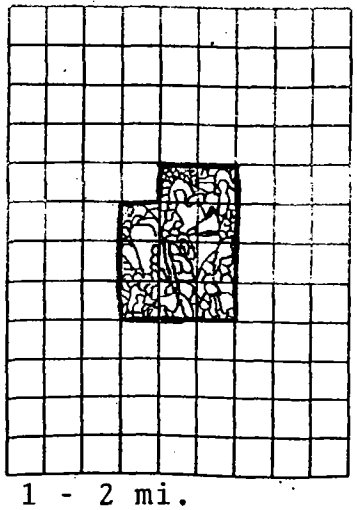
0 - ¼ mi.
about 12 acres



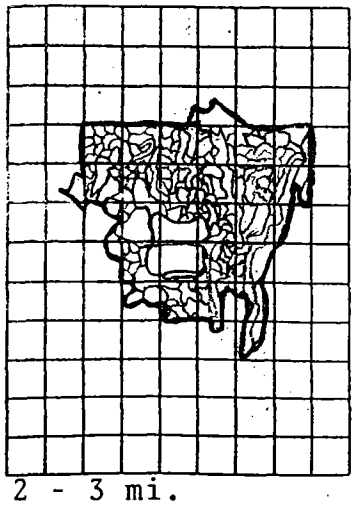
¼ - ½ mi.
about 13 acres



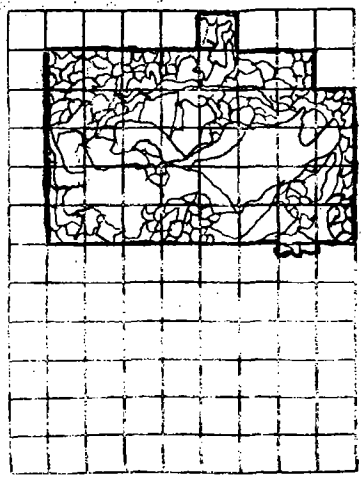
½ - 1 mi.
about 30 acres



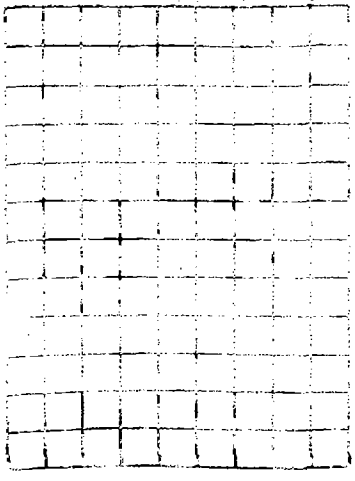
1 - 2 mi.
about 110 acres

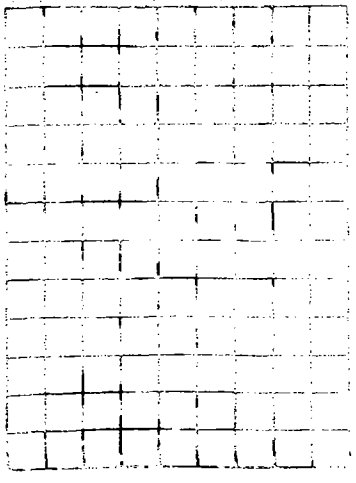


2 - 3 mi.
about 249 acres



3 - 4 mi.
about 403 acres

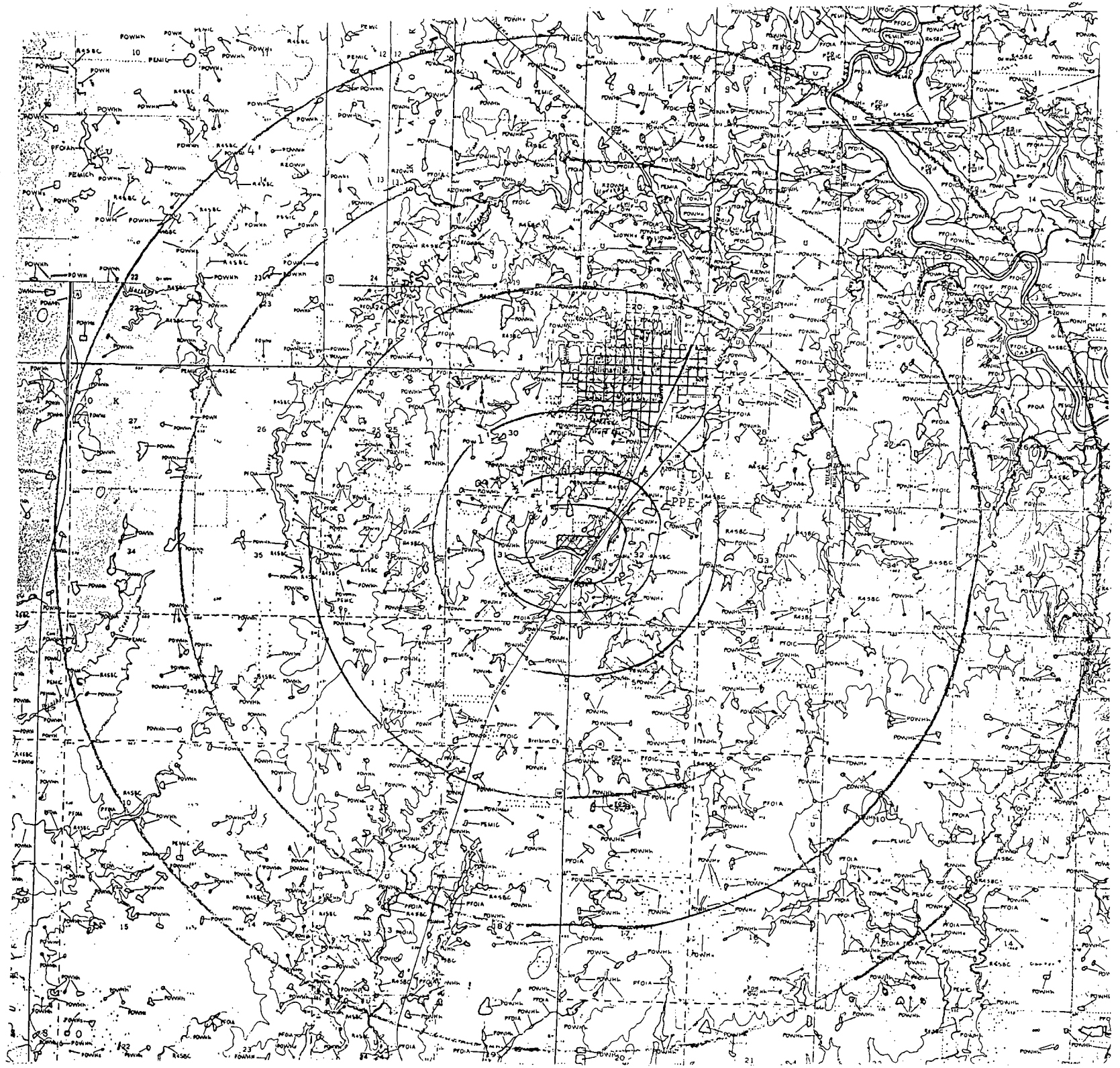


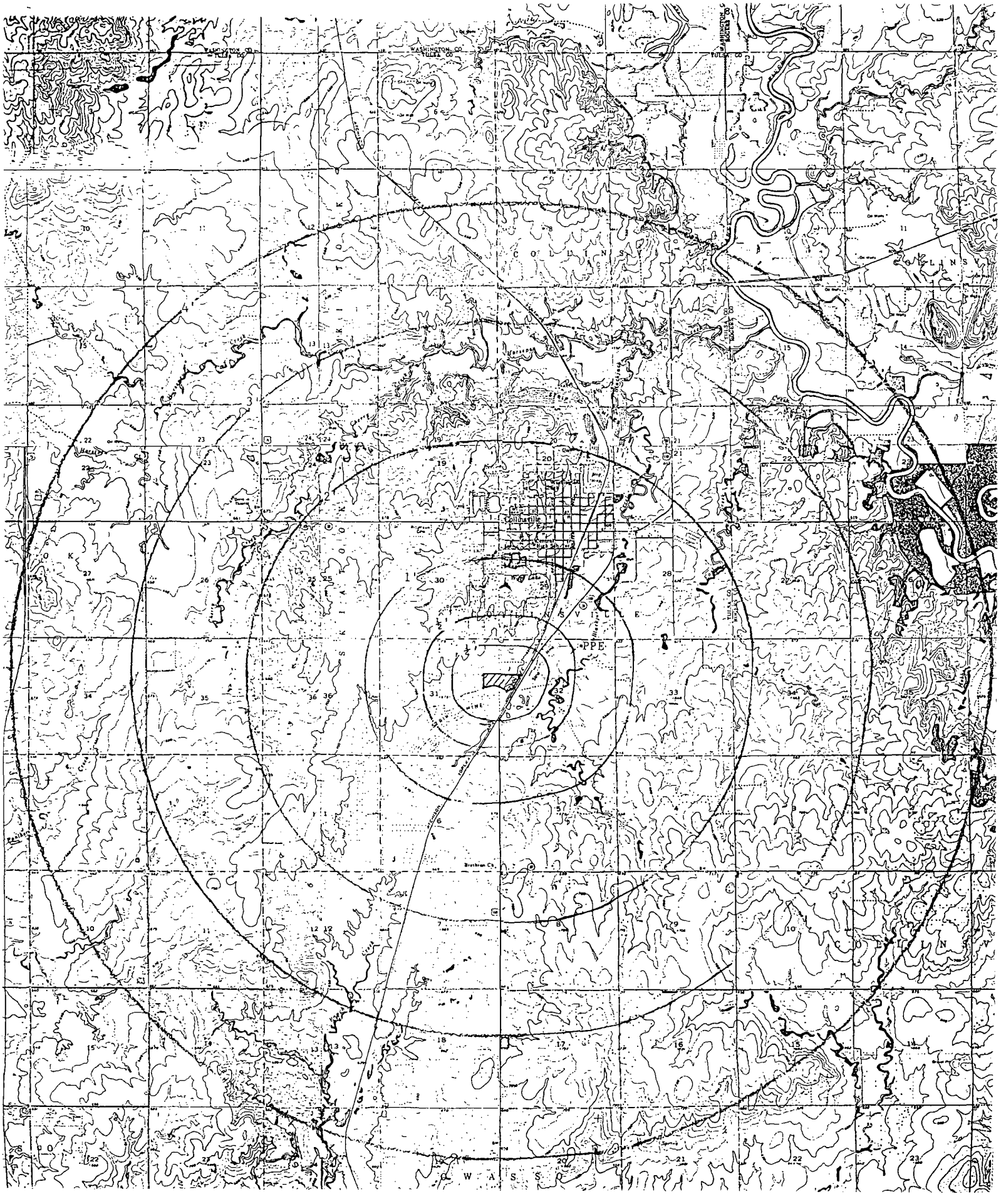


Acme Brick Strip Mines

½ cm² = 10 acres

Form for determining area of wetlands on 50% copy of USGS maps.




PPE

Reference 8

MEMORANDUM

November 4, 1992

To: Acme Brick PA file

From: David S. Crow, OSDH Environmental Specialist DSC

This memorandum is to serve as reference for the attached material used in determining the Groundwater portion of the Acme Brick Preliminary Assessment. The sources used are the following:

1. USGS Hydrologic Atlas 2, *Reconnaissance of the Water Resources of the Tulsa Quadrangle Northeastern Oklahoma*. 1971

2. U.S. Department of Agriculture Soil Conservation Service, *Soil Survey of Tulsa County, Oklahoma*.

Multi-Site.

OKLAHOMA GEOLOGICAL SURVEY

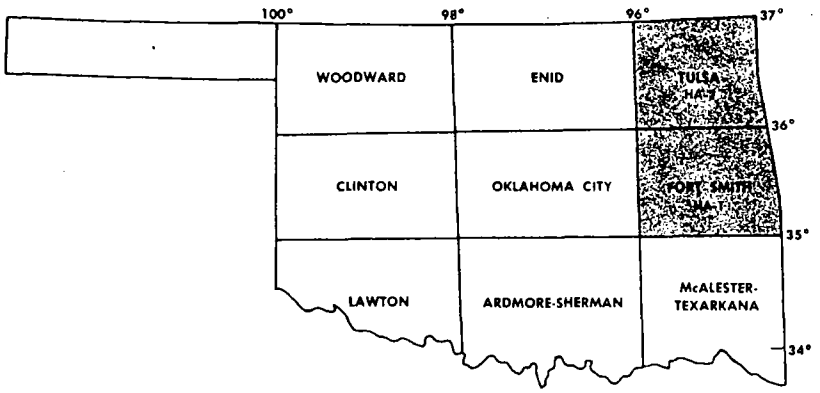
CHARLES J. MANKIN, *Director*

HYDROLOGIC ATLAS 2

RECONNAISSANCE OF THE WATER RESOURCES OF THE TULSA QUADRANGLE NORTHEASTERN OKLAHOMA

by
MELVIN V. MARCHER AND ROY H. BINGHAM

Prepared in cooperation with
United States Geological Survey



Scale
1:250,000

University of Oklahoma
Norman
1971

quality water.

ogical Survey, 1969

PENNSYLVANIAN

COFFEYVILLE AND CHECKERBOARD FORMATIONS

Coffeyville Formation, shale and thin-bedded sandstone. Yields only small amounts of fair- to poor-quality water.
Checkerboard Formation, limestone and some shale. Yields only small amounts of fair- to poor-quality water.

SEMINOLE FORMATION

Shale, sandstone, and thin coal beds. Yields only small amounts of fair- to poor-quality water.

HOLDENVILLE AND LENAPAH FORMATIONS

(Map unit only in Tulsa County)

IPhl

Holdenville Formation, shale and minor sandstone and limestone. Yields only small amounts of fair- to poor-quality water.
Lenapah Formation, limestone and shale. Yields only small amounts of fair- to poor-quality water.

LENAPAH FORMATION

(Map unit only in Nowata County)

IPlp

Limestone and shale. Yields only small amounts of fair- to poor-quality water.

NOWATA FORMATION

IPnw

Shale and minor sandstone and limestone. Yields only small amounts of fair- to poor-quality water.

OOLOGAH FORMATION

IPol

Thin-bedded limestone and some shale in the southern part of the area. North of Oologah, in western Rogers County, the map unit, IPol, includes the following formations: *Altamont Formation,* limestone and minor shale; *Bandera Formation,* shale and thin sandstone; *Pawnee Formation,* limestone and minor shale. Yields only small amounts of fair- to poor-quality water.

LABETTE FORMATION

IPlb

Shale and thin sandstone and limestone. Yields only small amounts of fair- to poor-quality water.

FORT SCOTT LIMESTONE

(Mapped with the Labette Formation south of Bird Creek in Tulsa County)

IPfs

Limestone and shale. Yields only small amounts of fair- to poor-quality water.

SENORA FORMATION

IPsn

Shale with thin and lenticular sandstone, minor limestone, and coal. Yields only small amounts of fair- to poor-quality water, except for the Chelsea Sandstone Member near the base of the formation in Craig, Mayes, and Rogers Counties, which probably will yield small to moderate amounts of fair-quality water locally.

BOGGY FORMATION

IPbg

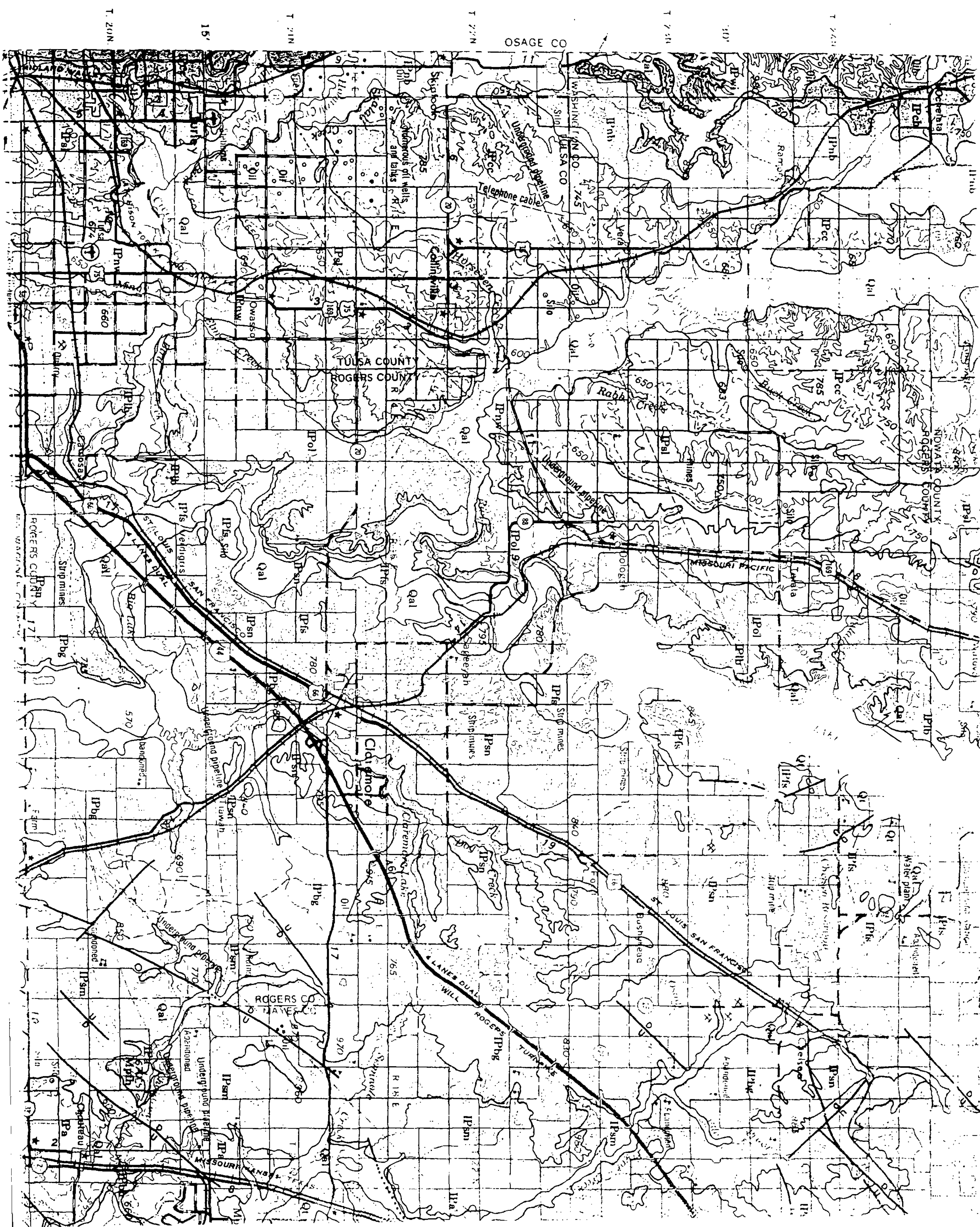
Shale, sandstone, and coal. Yields only small amounts of fair- to poor-quality water, except for the Bluejacket Sandstone Member at the base of the formation, which probably yields small to moderate amounts of fair-quality water locally.

SAVANNA, McALESTER, HARTSHORNE, AND ATOKA FORMATIONS

IPsv, IPsm, IPmh, IPha, IPsma

IPsv *Savanna Formation,* shale and thin sandstone, limestone, and coal. Yields only small amounts of fair- to poor-quality water.

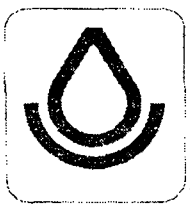
IPmh *McAlester and Hartshorne Formations,* shale and some sandstone and coal. Except for the Warner Sandstone Member at the base of the McAlester Formation, these units yield only small amounts of fair- to poor-quality water. The Warner Sandstone probably will yield small to moderate amounts of fair-



OSAGE CO
T. 20 N.
T. 21 N.
T. 22 N.
15'
10'
TULSA COUNTY
ROGERS COUNTY
TULSA CO
WASHINGTON CO
NOWATA COUNTY
ROGERS COUNTY
ROGERS CO
MAYES CO
Skiatook
Collinsville
Owasso
Catoosa
Claremore
Oologah
Talala
Chelsea
Numerous oil wells and tanks
Underground pipeline
Telephone cable
Horsepen Creek
Rabb Creek
Buck Creek
Strip mines
MISSOURI PACIFIC
ST LOUIS SAN FRANCISCO
4 LANES DUAL
WILL ROGERS TURNPIKE
MISSOURI KANSAS TEXAS
Abandoned
Qal
IPsn
IPsm
IPbg
IPfs
IPcc
IPol
IPsl

Gary L. McDonald

SOIL SURVEY OF
Tulsa County, Oklahoma



United States Department of Agriculture
Soil Conservation Service
In cooperation with
Oklahoma Agricultural Experiment Station

SYMBOL	NAME
1	Apperson silty clay loam, 1 to 3 percent slopes
2	Apperson silty clay loam, 3 to 5 percent slopes
3	Bates loam, 1 to 3 percent slopes
4	Bates-Coweta complex, 3 to 5 percent slopes
5	Catoosa silt loam, 1 to 3 percent slopes
6	Catoosa-Rock outcrop complex, 1 to 8 percent slopes
7	Choska very fine sandy loam
8	Choska-Severn-Urban land complex
9	Cleora fine sandy loam
10	Coweta-Bates complex, 2 to 6 percent slopes
11	Coweta-Eram-Urban land complex, 3 to 12 percent slopes
12	Dennis silt loam, 1 to 3 percent slopes
13	Dennis silt loam, 3 to 5 percent slopes
14	Dennis silt loam, 2 to 5 percent slopes, eroded
15	Dennis-Carytown complex, 1 to 3 percent slopes
16	Dennis-Radley complex, 0 to 12 percent slopes
17	Dennis-Urban land complex, 0 to 5 percent slopes
18	Enders-Hector complex, 5 to 30 percent slopes
19	Eram silty clay loam, 3 to 5 percent slopes
20	Eram-Coweta complex, 5 to 15 percent slopes
21	Glenpool loamy fine sand, 3 to 15 percent slopes
22	Hector-Linker complex, 1 to 5 percent slopes
23	Kamie loamy fine sand, 3 to 8 percent slopes
24	Kamie fine sandy loam, 1 to 3 percent slopes
25	Kamie-Urban land complex, 1 to 8 percent slopes
26	Kanima soils, 3 to 50 percent slopes 1/
27	Kiomatia soils 1/
28	Larton-Glenpool complex, 0 to 3 percent slopes
29	Latanier clay
30	Lula silt loam, 1 to 3 percent slopes
31	Mason silt loam
32	Newtonia silt loam, 1 to 3 percent slopes
33	Newtonia silt loam, 3 to 5 percent slopes
34	Niotaze-Darnell complex, 3 to 15 percent slopes
35	Niotaze-Darnell complex, 15 to 25 percent slopes
36	Niotaze-Darnell complex, 25 to 45 percent slopes
37	Niotaze-Darnell-Urban land complex, 3 to 25 percent slopes
38	Oil-waste land
39	Okay loam, 0 to 1 percent slopes
40	Okay loam, 1 to 3 percent slopes
41	Okay loam, 3 to 5 percent slopes
42	Okay loam, 2 to 5 percent slopes, eroded
43	Okemah silt loam, 0 to 1 percent slopes
* 44	Okemah-Parsons-Carytown complex, 0 to 1 percent slopes
45	Osage silty clay
46	Pits
47	Radley silt loam
48	Radley soils 1/
49	Severn very fine sandy loam
50	Shidler-Rock outcrop complex, 1 to 12 percent slopes
51	Tullahassee fine sandy loam
52	Urban land
53	Wynona silty clay loam
54	Wynona-Urban land complex

Parsons Series

The Parsons series consists of deep, very slowly permeable, nearly level soils on uplands. These soils formed in loamy and clayey material under a cover of grasses. The water table is at a depth of 0.5 to 1.5 feet during December through April.

Representative profile of Parsons silt loam, in an area of Okemah-Parsons-Carytown complex, O to 1 percent slopes, 120 feet south and 150 feet west of the northeast corner of sec. 23, T. 18 N., R. 13 E.:

Okemah Series

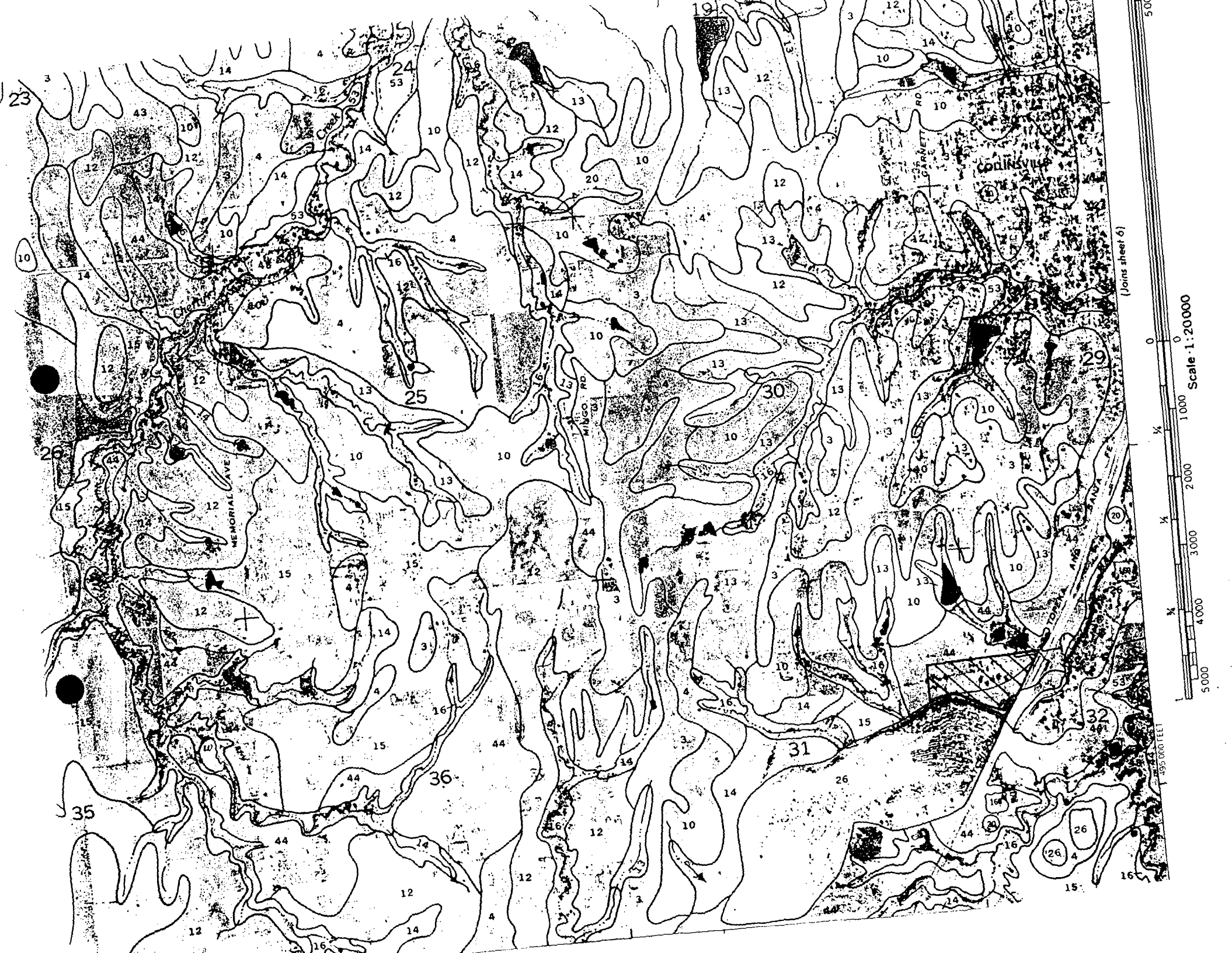
The Okemah series consists of deep, slowly permeable, nearly level soils on uplands. These soils formed in loamy and clayey sediments weathered from shales under a cover of native grasses. The water table is at a depth of 2 to 3 feet feet during December through April.

Representative profile of Okemah silt loam, O to 1 percent slopes, 800 feet west and 150 feet south of the northeast corner of sec. 12, T. 22 N., R. 13 E.:

Carytown Series

The Carytown series consists of deep, very slowly permeable, nearly level through very gently sloping soils on uplands. These soils formed in loamy and clayey material under a cover of prairie grasses. The water table is at a depth of less than 1 1/2 feet for brief to long periods during December through April.

Representative profile of Carytown silt loam, in an area of Okemah-Parsons-Carytown complex, 0 to 1 pecent slopes, 1,350 feet north and 60 feet west of the southeast corner of sec. 3, T. 19 N., R. 14 E.:


Scale 1:20000
(Joins sheet 6)
COLLINSVILLE
GARNETT RD
MINGO RD
MEMORIAL AVE
TOPEKA AND SANTA FE
Cherry Creek
23
24
25
26
29
30
31
32
35
36


Cherry Creek
MEMORIAL AVE
MIGGO RD
GARNETT RD
COLLINSVILLE
ATCHISON TOPEKA AND SANTA FE
(Joins sheet 6)
Scale 1:20000
1 Mile
19
20
24
25
29
30
31
32
35
36

Reference 9

RECORD OF COMMUNICATION

TO: Appropriate PA files

FROM: David S. Crow, OSDH D.S.C.

DATE: October 7, 1992

Re: PA sites for FFY93 that have no PWS locations within the 4-mile study radius.

According to Terry Clingman, Water Quality Service, OSDH the following sites **do not** have any PWS locations within the 4-mile study radius.

Petroleum Electronics Mfg. Inc., Tulsa County

Power Electronics Mfg. Inc., Tulsa County

Precision Chrome Co., Tulsa County

Acme Brick Strip Mines, Tulsa County

Reference 10

October 5, 1992

Gary Glover, Hydrologist
Ground Water Division
Oklahoma Water Resources Board
6000 N. Harvey
P.O. Box 150
Oklahoma City, OK 73101-150

Dear Mr. Glover:

The purpose of this letter is to request all copies of domestic well logs for both **private** and **municipal** wells that are presumably active and are in the locations specified in the attached tables. Please include copies from your current files, archive files, and permit application files. (Copies of well logs are preferred since they contain local geological information).

Copies of the well logs may be sent to the Oklahoma State Department of Health (OSDH) through interagency mail. The information provided by your office will be used to describe groundwater targets for each preliminary site assessment conducted by the OSDH, as authorized by a cooperative agreement with the U. S. Environmental Protection Agency.

If you have any questions or comments, please call me at (405) 271-7099, or Richard Brooks at (405) 271-7049.

Sincerely,

David S. Crow
Environmental Specialist

Enclosures (18)

WELL LOG REQUEST

for the

Acme Brick Strip Mines Site

Active (Private and Municipal) Domestic Wells				
County(s)	**Township**	**Range**	**Meridian**	**Sections**
Tulsa	21N	13E	IM	1 - 3, 10 - 14, 24.
Tulsa Rogers	21N	14E	IM	1 - 11, 14 - 21.
Tulsa	22N	13E	IM	12 - 15, 22 - 27, 34 - 36.
Tulsa Rogers	22N	14E	IM	7 - 10, 14 - 36.

White—Water Resources Board
Canary—Driller's Copy
Pink—Customer's Copy

#24753

STATE OF OKLAHOMA
MULTIPURPOSE WELL REPORT
OKLAHOMA WATER RESOURCES BOARD
1000 N.E. 10th St., P.O. Box 53585
Oklahoma City, Oklahoma 73152

1. WELL OWNER Dennis Bowers, 11006 N. 92nd E. Ave, Owasso, Ok, 74055 PHONE 918-272-0969

2. LEGAL DESCRIPTION SW ¼ of NE ¼ of SE ¼ of sec. 12; TWP. 21N N S; RGE 13E EIM (Circle One) WIM ECM COUNTY Tulsa

FINDING LOCATION Lot 5, Block 2, Country Estates
Blocks or distance(s) from given point(s).

3. TYPE OF WORK	4. USE	NON-DOMESTIC	5. DRILLING METHOD
XX ☑ New Well ☐ Plugging	XX ☑ Domestic	☐ Irrigation	☐ Fluid Rotary ☐ Rev. Rotary
☐ Reconditioning Work	☐ Stock	☐ Municipal	☐ Cable ☐ Other
☐ Monitoring	☐ Monitoring	☐ Industrial	XX ☑ Air Rotary
☐ Test Hole	☐ Test Hole	☐ Commercial	☐ H.S. Auger
☐ Other	☐ Other	☐ Other	

6. LITHOLOGIC LOG

Material	From	To	Saturated
Top soil	0	1	
Damp clay	1	10	
Yellow clay	10	14	
Gray shale	14	85	
Sandy gray shale	85	107	
Gray sand rock	107	133	2gpm
Gray shale	133	137	
Sandrock	137	200	8gpm

RECEIVED
MAY 6 - 1991
Oklahoma Water Resources Board

7. LOCATION PERMIT

If this well is Non-Domestic, has the location been permitted?

☐ Yes ☐ No Permit No. _____

8. NEW WELL CONSTRUCTION DATA

DATES: Started 5-6-91 Completed 5-6-91
Contractor Knott's Water Well Drilling
Driller Dale Knott
Diameter Hole 8 in Total Depth 200 ft.

CASING RECORD

	Diameter		From		To	
Surface Pipe		in.		ft.		ft.
Well Casing	5"	in.	200	ft.	+2	ft.

Cement Grout Surface Seal? X Yes ☐ No
Type of Surface Seal: Portland Depth of Seal: 10 ft.
GRAVEL PACK:
Gravel Packed From: 200 ft. to 10 ft.
Amount Used: 2T

PERFORATION RECORD

Type/Size				
1/32" slotted	From	197	ft. To	160 ft.
	From		ft. To	ft.
	From		ft. To	ft.

9. WELL TEST DATA

Static Water Level Below Land Surface 105 ft.
Approximate Yield 10 gpm.
If Artesian: Flows _____ gpm.
200 mg/l salt; 9g hard;

10. PUMP INFORMATION

Pump Type Submersible
Power Source Electric
Rated Capacity 10 gpm.
Depth of Bowls or Cylinder 190 ft.

11. PLUGGING DATA

Date Plugged _____
Backfilled With _____ Material To _____ ft.
Grouted or Cemented From _____ Ft. To _____ ft.

12. RECONDITIONING WORK

Date Completed _____
Replaced Casing From _____ ft. To _____ ft.
Replaced Screen From _____ ft To _____ ft.
Deepened Well From _____ ft. To _____ ft.
Redeveloped Well By _____

13. PLAT

10 ac

14. CERTIFICATION

The work described above was done under my supervision, and this report is true and correct to the best of my knowledge.

Name Kathleen Knott License # WD 74
Address Rt. 1, TErlton, Ok, 74081 Phone # 865-3546
Signed Kathleen Knott Date 5-7-91

Form 424-0887

USE ADDITIONAL SHEETS IF NECESSARY

White—Water Resources Board
Canary—Driller's Copy
Pink—Customer's Copy

#26102

STATE OF OKLAHOMA
MULTIPURPOSE WELL REPORT
OKLAHOMA WATER RESOURCES BOARD
1000 N.E. 10th St., P.O. Box 53585
Oklahoma City, Oklahoma 73152

1. WELL OWNER Ruth Ann Ratcliff, 10602 N. 97th E. Ave., Owasso, OK, 74055 PHONE (918)272-5293

2. LEGAL DESCRIPTION SE ¼ of SE ¼ of SE ¼ of sec. 12; TWP. 21N N S. RGE 13E EIM (Circle One) WIM ECM COUNTY Tulsa

FINDING LOCATION _____
Blocks or distance(s) from given point(s).

3. TYPE OF WORK
- [X] New Well
- [ ] Plugging
- [ ] Reconditioning Work
- [ ] Monitoring
- [ ] Test Hole
- [ ] Other

4. USE
- [X] Domestic
- [ ] Stock
- [ ] Monitoring
- [ ] Test Hole
- [ ] Other

NON-DOMESTIC
- [ ] Irrigation
- [ ] Municipal
- [ ] Industrial
- [ ] Commercial
- [ ] Other

5. DRILLING METHOD
- [ ] Fluid Rotary
- [ ] Rev. Rotary
- [ ] Cable
- [ ] Other
- [X] Air Rotary
- [ ] H.S. Auger

6. LITHOLOGIC LOG

Material	From	To	Saturated
Top soil	0	1	
Clay	1	20	
Gray shale	20	62	
Gray sandy shale	62	72	
Gray shale	72	78	
Gray sandy shale	78	82	
Gray sand rock	82	140	7gpm
Gray shale	140	145	

7. LOCATION PERMIT

If this well is Non-Domestic, has the location been permitted?

[ ] Yes [ ] No Permit No. _____

8. NEW WELL CONSTRUCTION DATA

DATES: Started 8-14-91 Completed 8-14-91
Contractor Knott's Water Well Drilling
Driller Dale Knott
Diameter Hole 8 in. Total Depth 145 ft.

CASING RECORD

	Diameter	From	To
Surface Pipe	in	ft.	ft.
Well Casing	5 in.	145 ft.	+2 ft.

Cement Grout Surface Seal? [X] Yes [ ] No
Type of Surface Seal: Portland Depth of Seal: 10 ft.
GRAVEL PACK:
Gravel Packed From 145 ft. to 10 ft.
Amount Used: 1½T

PERFORATION RECORD

Type/Size		
1/32" slotted	From 143 ft.	To 105 ft.
	From ____ ft.	To ____ ft.
	From ____ ft.	To ____ ft.

9. WELL TEST DATA

Static Water Level Below Land Surface 75 ft.
Approximate Yield 7 gpm.
If Artesian: Flows ____ gpm.
250 mg/l salt; 18g hard;

10. PUMP INFORMATION

Pump Type Submersible
Power Source Electric
Rated Capacity 10 gpm.
Depth of Bowls or Cylinder 135 ft.

11. PLUGGING DATA

Date Plugged _____
Backfilled With _____ Material To _____ ft.
Grouted or Cemented From _____ Ft. To _____ ft.

12. RECONDITIONING WORK

Date Completed _____
Replaced Casing From _____ ft. To _____ ft.
Replaced Screen From _____ ft. To _____ ft.
Deepened Well From _____ ft. To _____ ft.
Redeveloped Well By _____

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AUG 19 1991
Oklahoma Water Resources Board

13. PLAT

10 ac

14. CERTIFICATION

The work described above was done under my supervision, and this report is true and correct to the best of my knowledge.

Name Kathleen Knott License # WD 74
Address Rt. 1, Terlton, Ok 74081 Phone # 865-3546
Signed Kathleen Knott Date 7-15-91

Form 424-0887

USE ADDITIONAL SHEETS IF NECESSARY

White — Water Resources Board
Canary — Drillers Copy
Pink — Drillers Copy

#13201

STATE OF OKLAHOMA
WATER RESOURCES BOARD
1000 N.E 10th St. P.O Box 53585
Oklahoma City, Oklahoma 73152

MULTI-PURPOSE WATER WELL REPORT

Application No. _____
Aquifer _____
Steam System Code _____
Use Code _____
County _____
(Official Use Only)

1. OWNER Herbert Hamlin ADDRESS P O Box 474
Sperry OK 74073 PHONE 288-7686

2. LEGAL DESCRIPTION OF WELL
NW ¼ of SW ¼ of SE ¼ of sec. 14 ; TWP. 21 (N) S; Rge. 13 (EIM) WIM ECM; COUNTY Tulsa

3. TYPE OF WORK
☑ New Well ☐ Plugging
☐ Reconditioning Work ☐ Test

4. PROPOSED / PAST USE
☑ Domestic ☐ Irrigation ☐ Stock
☐ Municipal ☐ Industrial ☐ Test

5. DRILLING METHOD
☑ Rotary ☐ Rev. Rotary
☐ Cable ☐ Other _____

6. LOG

Material	From	To	Saturated ✓
Soil	0	3	
Clay	3	12	
Sands	12	14	✓
Clay	14	34	
Sandstone, Broken	34	40	✓
Sandstone	40	41	
Shale	41	45	

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RECEIVED
AUG 28 1984
Oklahoma Water Resources Board

7. NEW WELL CONSTRUCTION DATA
Dates: Started 8/3/84 Completed 8/6/84
Contractor CRABAR DRILLING
Driller CRAIG TREIBER
Diameter Hole 8 in. Total Depth 45 ft.

CASING RECORD
Diameter 4 in. From +1½ ft. To 35 ft.
_____ in. _____ ft. _____ ft.
Surface Seal: ☑ Yes ☐ No Type: Cement
Depth of Seal: 11 ft.
Gravel Packed: #8-12
Gravel Packed From 45 ft. to 30 ft.
Amount Used: ½ Ton

PERFORATION RECORD
Type Johnson .020 From 35 ft. To 40 ft.
Size 4" x 5' From _____ ft. To _____ ft.
" _____ From _____ ft. To _____ ft.

8. WELL TEST DATA
Static Water Level Below Land Surface 24 ft.
If Artesian: Flows _____ gpm.
Water Temp. 61 °c/f Quality Gyp WATER

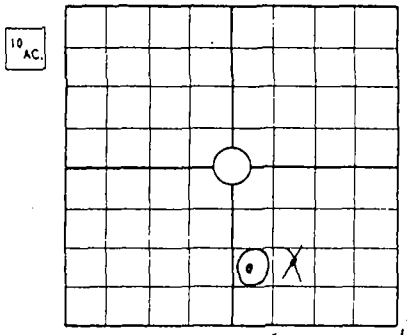
BAILER TEST
Drawdown _____ ft. After Pumping _____ hrs. At _____ gpm.
Size of Bailer: _____ gal.

AIR LIFT ~~PUMPING~~ TEST 1 TO 3 gpm
Drawdown _____ ft. After Pumping 1 hrs. At _____ gpm.

9. PLUGGING DATA
Date Plugged _____
Backfilled With _____ Material To _____ ft.
Grouted or Cemented From _____ ft. To _____ ft.
Plot Location in Item 11. Show Distances From 2 Section Lines.

10. RECONDITIONING WORK
Date Completed _____
☐ Replaced Casing From _____ ft. To _____ ft.
☐ Replaced Screen From _____ ft. To _____ ft.
Deepened Well From _____ ft. To _____ ft.
Redeveloped Well By _____

11. PLAT



NW ¼ of SW ¼ of SE ¼ of SEC 14 ;
TWP 21 (N) S; RGE 13 (EIM) WIM, ECM

12. PUMP INFORMATION
Pump Type To BE INSTALLED BY
Power Source OWNER
Rated Capacity _____ gpm.
Depth of Bowls or Cylinder _____ ft.

13. CERTIFICATION
The work described above was done under my supervision, and this report is true and correct to the best of my knowledge.

Name CRAIG TREIBER License # WD-238
Address 6635 E 103 ST. South Tulsa Phone # 299-7709 or 9168
Signed Craig Treiber Date 8/6/84

USE ADDITIONAL SHEETS IF NECESSARY

FORM 404-10 76

V

White — Water Resources Board
Canary — Drillers Copy
Pink — Drillers Copy

13204

STATE OF OKLAHOMA
WATER RESOURCES BOARD
1000 N.E. 10th St., P.O. Box 53585
Oklahoma City, Oklahoma 73152

Application No. _____
Aquifer _____
Steam System Code _____
Use Code _____
County _____
(Official Use Only)

MULTI-PURPOSE WATER WELL REPORT

1. OWNER H. H. Daniel ADDRESS 11814 N. 136 E. Ave.
Collinsville, Okla. PHONE 919-272-7387

2. LEGAL DESCRIPTION OF WELL EIM
NE ¼ of SE ¼ of SE ¼ of sec. 5 ; TWP. 21 N Rge. 14 COUNTY Tulsa

3. TYPE OF WORK
☒ New Well ☐ Plugging
☐ Reconditioning Work ☐ Test

4. PROPOSED / PAST USE
☒ Domestic ☐ Irrigation ☐ Stock
☐ Municipal ☐ Industrial ☐ Test

5. DRILLING METHOD
☐ Rotary ☐ Rev. Rotary
☒ Cable ☐ Other _____

6. LOG

Material	From	To	Saturated ✓
soil	0	2	
sandrock	2	120	X

(water @ 29, 61, & 115')

RECEIVED
AUG 15 1984
Water Resources Board

7. NEW WELL CONSTRUCTION DATA
Dates: Started 7/26/84 Completed 7/30/84
Contractor L & J Jennings Drilling Co.
Driller Louis Jennings
Diameter Hole 8 in. Total Depth 120 ft.

CASING RECORD

Diameter	From	To
5" PVC 200	1' above ground	19 ft.
_____ in.	_____ ft.	_____ ft.

Surface Seal: ☒ Yes ☐ No Type: cement
Depth of Seal: 19 ft.
Gravel Packed:
Gravel Packed From _____ ft. to _____ ft.
Amount Used: _____

PERFORATION RECORD
Type _____ From _____ ft. To _____ ft.
Size _____ From _____ ft. To _____ ft.
" _____ From _____ ft. To _____ ft.

8. WELL TEST DATA
Static Water Level Below Land Surface 5 ft.
If Artesian: Flows _____ gpm.
Water Temp. 67 °☒ f Quality good

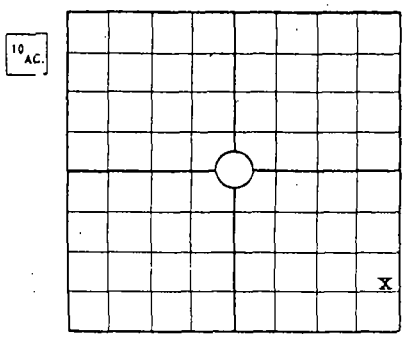
BAILER TEST
bailed dry 1st set 1 min. well made 20 gal.
Drawdown _____ ft. After Pumping _____ hrs. At _____ gpm.
Size of Bailer: 30 gal.

PUMPING TEST
Drawdown _____ ft. After Pumping _____ hrs. At _____ gpm.

9. PLUGGING DATA
Date Plugged _____
Backfilled With _____ Material To _____ ft.
Grouted or Cemented From _____ ft. To _____ ft.
Plot Location in Item 11. Show Distances From 2 Section Lines.

10. RECONDITIONING WORK
Date Completed _____
☐ Replaced Casing From _____ ft. To _____ ft.
☐ Replaced Screen From _____ ft. To _____ ft.
Deepened Well From _____ ft. To _____ ft.
Redeveloped Well By _____

11. PLAT



NE ¼ of SE ¼ of SE ¼ of SEC 5 ;
TWP 21 N RGE 14 EIM

12. PUMP INFORMATION
Pump Type _____
Power Source _____
Rated Capacity _____ gpm.
Depth of Bowls or Cylinder _____ ft.

13. CERTIFICATION
The work described above was done under my supervision, and this report is true and correct to the best of my knowledge.

Name Louis Jennings License # WD265
Address RR 2 Box 96 Claremore, OK. Phone # 918-341-0195
Signed _____ Date 8-8-84

USE ADDITIONAL SHEETS IF NECESSARY

FORM 424-10 /6

White — Water Resources Board
Canary — Drillers Copy
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#13205

STATE OF OKLAHOMA
WATER RESOURCES BOARD
1000 N.E. 10th St. P.O. Box 53585
Oklahoma City, Oklahoma 73152

MULTI-PURPOSE WATER WELL REPORT

Application No. _____
Aquifer _____
Steam System Code _____
Use Code _____
County _____
(Official Use Only)

1. OWNER John Klein ADDRESS 12584 E. 111 th St. North
Owasso, Okla. 74055 PHONE _____

2. LEGAL DESCRIPTION OF WELL EIM _____
NW ¼ of SE ¼ of NE ¼ of sec. 8 ; TWP. 21 N Rge. 14 COUNTY Tulsa

3. TYPE OF WORK
☒ New Well ☐ Plugging
☐ Reconditioning Work ☐ Test

4. PROPOSED / PAST USE
☒ Domestic ☐ Irrigation ☐ Stock
☐ Municipal ☐ Industrial ☐ Test

5. DRILLING METHOD
☐ Rotary ☐ Rev. Rotary
☒ Cable ☐ Other _____

6. LOG

Material	From	To	Saturated ✓
soil	0	2	
sandy clay	2	12	
sand rock	12	113	x
water @ 90'			
shale	113	120	

RECEIVED
SEP 28 1984
Oklahoma W. R. B.

7. NEW WELL CONSTRUCTION DATA

Dates: Started 8-25-84 Completed 8-27-84
Contractor I&S Jennings Drilling Co.
Driller Louis Jennings
Diameter Hole 12 in. Total Depth 120 ft.

CASING RECORD

Diameter		From		To	
5" PVC 160 #	in.	1' above ground	ft.	11	ft.
_____	in.	_____	ft.	_____	ft.

Surface Seal: ☒ Yes ☐ No Type: cement
Depth of Seal: 11 ft.
Gravel Packed:
Gravel Packed From _____ ft. to _____ ft.
Amount Used: _____

PERFORATION RECORD

Type _____ From _____ ft. To _____ ft.
Size _____ From _____ ft. To _____ ft.
" _____ From _____ ft. To _____ ft.

8. WELL TEST DATA

Static Water Level Below Land Surface 16 ft.
If Artesian: Flows _____ gpm.
Water Temp. 65 °F Quality good

BAILER TEST
bailed dry let set 10 min. well made 40 gal.
Drawdown _____ ft. After Pumping _____ hrs. At _____ gpm.
Size of Bailer: 30 gal.

PUMPING TEST
Drawdown _____ ft. After Pumping _____ hrs. At _____ gpm.

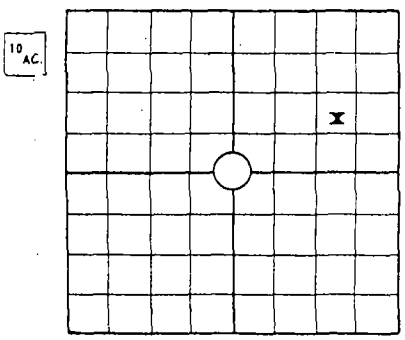
9. PLUGGING DATA

Date Plugged _____
Backfilled With _____ Material To _____ ft.
Grouted or Cemented From _____ ft. To _____ ft.
Plot Location in Item 11. Show Distances From 2 Section Lines.

10. RECONDITIONING WORK

Date Completed _____
☐ Replaced Casing From _____ ft. To _____ ft.
☐ Replaced Screen From _____ ft. To _____ ft.
Deepened Well From _____ ft. To _____ ft.
Redeveloped Well By _____

11. PLAT



NW ¼ of SE ¼ of NE ¼ of SEC 8 ;
WP 21 N RGE 14 EIM

12. PUMP INFORMATION

Pump Type _____
Power Source _____
Rated Capacity _____ gpm.
Depth of Bowls or Cylinder _____ ft.

13. CERTIFICATION

The work described above was done under my supervision, and this report is true and correct to the best of my knowledge.

Name Louis Jennings License # WD265
Address RR 2 box 96 Claremore, OK. Phone # 918-341-0195
Signed _____ Date 9-27-84

USE ADDITIONAL SHEETS IF NECESSARY

FORM 424-10 76

White — Water Resources Board
Canary — Drillers Copy
Pink — Drillers Copy

MULTI-PURPOSE WATER WELL REPORT

STATE OF OKLAHOMA
WATER RESOURCES BOARD
1000 N.E. 10th St., P.O. Box 53585
Oklahoma City, Oklahoma 73152

Application No. [redacted]
Aquifer
Steam System Code
Use Code
County
(Official Use Only)

#13202

1. OWNER BOB BRILEY ADDRESS 10324 N 127 E AVE
OWASSO OK. PHONE
2. LEGAL DESCRIPTION OF WELL (EIM) WIM Circle One)
SW ¼ of NE ¼ of NE ¼ of sec. 17 ; TWP 21 N RGE 14 ECM; COUNTY TULSA

3. TYPE OF WORK	4. USE	NON-DOMESTIC	5. DRILLING METHOD
☑ New Well ☐ Plugging	☑ Domestic	☐ Irrigation	☐ Rotary ☐ Rev. Rotary
☐ Reconditioning Work	☐ Stock	☐ Municipal	☐ Cable ☐ Other
☐ Test/Monitoring	☐ Test Monitoring	☐ Industrial	☑ Air
		☐ Commercial	
		☐ Other	

6. LOG

Material	From	To	Saturated
CLAY	0	8	
SAND ROCK	8	32	
SOFT LIME	32	70	
LIME	70	71	
SOFT LIME	71	94	✓
SHALE	94	110	

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AUG 14 1986

7. LOCATION PERMIT

If this well is Non-Domestic, has this location been permitted?

☐ Yes ☐ No Permit No.

8. NEW WELL CONSTRUCTION DATA

DATES: Started 11 JULY 86 Completed 12 JULY 86
Contractor WAGNER WATER WELLS
Driller CK WAGNER
Diameter Hole 7 in. Total Depth 110 ft.

CASING RECORD

	Diameter	From	To
Inside	4 1/2 in.	2 - 110 ft.	110 ft.
Outside	6 in.	0 ft.	10 ft.

Cement Grout Surface Seal ☑ Yes ☐ No
Type of Surface Seal: Depth of Seal: ft.
GRAVEL PACKED:
Gravel Packed From 40 ft. to 110 ft.
Amount Used: 55 CAL

PERFORATION RECORD

Type Size		
.125 SLOT	From 50 ft.	To 110 ft.
	From ft.	To ft.
	From ft.	To ft.

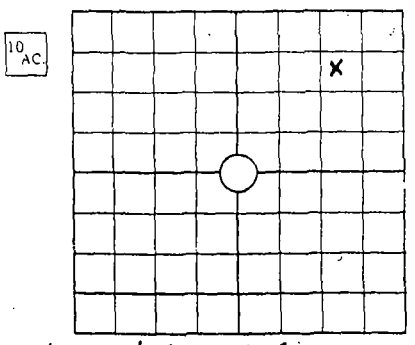
9. WELL TEST DATA

Static Water Level Below Land Surface 35 ft.
If Artesian: Flows gpm.
Approximate Yield 4 gpm.

10. PLUGGING DATA

Date Plugged
Backfilled With Material To ft.
Grouted or Cemented From ft. To ft.
Plot Location in Item 11. Show Distances From 2 Section Lines.

11. PLAT



SW ¼ of NE ¼ of NE ¼ of SEC 17 ;
TWP 21 N RGE 14 (Circle One) EIM, WIM, ECM

12. PUMP INFORMATION

Pump Type SUB
Power Source 220
Rated Capacity 10 gpm.
Depth of Bowls or Cylinder 103 ft.

13. RECONDITIONING WORK

Date Completed
☐ Replaced Casing From ft. To ft.
☐ Replaced Screen From ft. To ft.
Deepened Well From ft. To ft.
Redeveloped Well By

14. CERTIFICATION

The work described above was done under my supervision, and this report is true and correct to the best of my knowledge.

Name CK WAGNER License # 209
Address SAPULPA OK Phone #224-3357
Signed C K Wagner Date 14 July 86

Form 424-0684

USE ADDITIONAL SHEETS IF NECESSARY

White — Water Resources Board
Canary — Drillers Copy
Pink — Drillers Copy

MULTI-PURPOSE WATER WELL REPORT

STATE OF OKLAHOMA
WATER RESOURCES BOARD
1000 N.E. 10th St., P.O. Box 53585
Oklahoma City, Oklahoma 73152

Application No. [redacted]
Aquifer
Steam System Code
Use Code
County
(Official Use Only)

#13208

1. OWNER Edward W. Coats ADDRESS Rt #1 Box 160-3
Collinsville, Okla. 74021 PHONE 371-3169
2. LEGAL DESCRIPTION OF WELL (EIM) WIM (Circle One)
SE ¼ of NW ¼ of NE ¼ of sec. 34 ; TWP. 22 (N) S; RGE 13 ECM; COUNTY Tulsa

3. TYPE OF WORK
- [x] New Well
- [ ] Plugging
- [ ] Reconditioning Work
- [ ] Test/Monitoring

4. USE
- [x] Domestic
- [ ] Stock
- [ ] Test Monitoring

NON-DOMESTIC
- [ ] Irrigation
- [ ] Municipal
- [ ] Industrial
- [ ] Commercial
- [ ] Other

5. DRILLING METHOD
- [ ] Rotary
- [ ] Rev. Rotary
- [x] Cable
- [ ] Other
- [ ] Air

6. LOG

Material	From	To	Saturated
soil	0	1	
clay	1	12	
shale	12	32	
sandrock	32	85	✓

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OCT 6 1986
OWRB

7. LOCATION PERMIT

If this well is Non-Domestic, has this location been permitted?
- [ ] Yes
- [ ] No Permit No.

8. NEW WELL CONSTRUCTION DATA

DATES: Started 7-6-86 Completed 7-12-86
Contractor L+S Jennings Drilling Co.
Driller Louis Jennings
Diameter Hole 8 in. Total Depth 85 ft.

CASING RECORD

	Diameter		From		To	
Inside		in.		ft.		ft.
Outside	5" 160#	in.	1' above surface	ft.	19	ft.

Cement Grout Surface Seal [ ] Yes [ ] No
Type of Surface Seal: Cement Depth of Seal: 19' ft.
GRAVEL PACKED:
Gravel Packed From ft. to ft.
Amount Used:

PERFORATION RECORD

Type	Size					
		From	ft.	To	ft.	
		From	ft.	To	ft.	
		From	ft.	To	ft.	

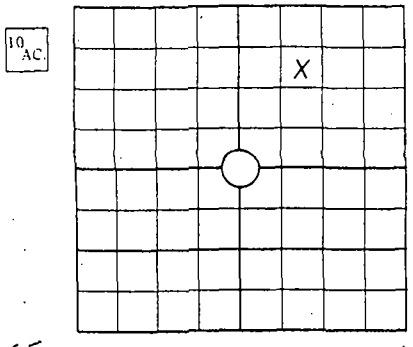
9. WELL TEST DATA

Static Water Level Below Land Surface 26 ft.
If Artesian: Flows gpm.
Approximate Yield 5 gpm.

10. PLUGGING DATA

Date Plugged
Backfilled With Material To ft.
Grouted or Cemented From ft. To ft.
Plot Location in Item 11. Show Distances From 2 Section Lines.

11. PLAT



SE ¼ of NW ¼ of NE ¼ of SEC 34 ;
TWP 22 (N) S; RGE 13 (Circle One) EIM, WIM, ECM

12. PUMP INFORMATION

Pump Type
Power Source
Rated Capacity gpm.
Depth of Bowls or Cylinder ft.

13. RECONDITIONING WORK

Date Completed
- [ ] Replaced Casing From ft. To ft.
- [ ] Replaced Screen From ft. To ft.

Deepened Well From ft. To ft.
Redeveloped Well By

14. CERTIFICATION

The work described above was done under my supervision, and this report is true and correct to the best of my knowledge.

Name Louis Jennings License # WD265
Address RR#2 Box 96 Claremore, OK Phone # 341-0195
Signed [signature] Date 10-11-86

Form 424-0684

USE ADDITIONAL SHEETS IF NECESSARY

White — Water Resources Board
Canary — Drillers Copy
Pink — Drillers Copy

#13209

STATE OF OKLAHOMA
WATER RESOURCES BOARD
1000 N.E. 10th St., P.O. Box 53585
Oklahoma City, Oklahoma 73152

Application No. _____
Aquifer _____
Steam System Code _____
Use Code _____
County _____
(Official Use Only)

MULTI-PURPOSE WATER WELL REPORT

1. OWNER Danny Geasland ADDRESS 9147 E. Okla Place
Tulsa, OK 74115 PHONE _____

2. LEGAL DESCRIPTION OF WELL EIM
SW ¼ of NW ¼ of SE ¼ of sec. 9 ; TWP. 22 N N S; Rge. 14 E ~~ECM~~: COUNTY Tulsa

3. TYPE OF WORK	4. PROPOSED / PAST USE	5. DRILLING METHOD
☒ New Well ☐ Plugging	☒ Domestic ☐ Irrigation ☐ Stock	☐ Rotary ☐ Rev. Rotary
☐ Reconditioning Work ☐ Test	☐ Municipal ☐ Industrial ☐ Test	☒ Cable ☐ Other _____

6. LOG

Material	From	To	Saturated ✓
Soil	0	1	
Sandy Clay	1	3	
Sand	3	19	
Shale	19	28	X
Slate	28	36	X
Shale	36	43	
Sandy Shale	43	76	
Sand	76	82	
Sandy shale	82	100	

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JAN 10 1984
Oklahoma Water Resources Board

RECEIVED
JAN 5 1984
Oklahoma Water Resources Board

7. NEW WELL CONSTRUCTION DATA

Dates: Started 12/2/83 Completed 12/10/83
Contractor L & S Jennings Drilling Co.
Driller Louis Jennings
Diameter Hole 10 in. Total Depth 100 ft.

CASING RECORD

Diameter	From	To
5 in.	1' above ground ft.	25 ft.
_____ in.	_____ ft.	_____ ft.

Surface Seal: ☒ Yes ☐ No Type: Cement
Depth of Seal: 25 ft. to surface
Gravel Packed:
Gravel Packed From _____ ft. to _____ ft.
Amount Used: _____

PERFORATION RECORD

Type _____ From _____ ft. To _____ ft.
Size _____ From _____ ft. To _____ ft.
" _____ From _____ ft. To _____ ft.

8. WELL TEST DATA

Static Water Level Below Land Surface 14 ft.
If Artesian: Flows _____ gpm.
Water Temp. 66 °c/f Quality good

BAILER TEST
Bailed hole dry. Makes 30 gal erery 5 minutes
Drawdown _____ ft. After Pumping _____ hrs. At _____ gpm.
Size of Bailer: 33 gal. 9" bailer

PUMPING TEST
Drawdown _____ ft. After Pumping _____ hrs. At _____ gpm.

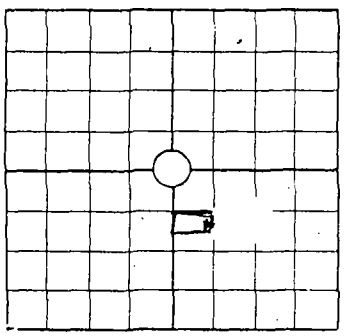
9. PLUGGING DATA

Date Plugged _____
Backfilled With _____ Material To _____ ft.
Grouted or Cemented From _____ ft. To _____ ft.
Plot Location in Item 11. Show Distances From 2 Section Lines.

10. RECONDITIONING WORK

Date Completed _____
☐ Replaced Casing From _____ ft. To _____ ft.
☐ Replaced Screen From _____ ft. To _____ ft.
Deepened Well From _____ ft. To _____ ft.
Redeveloped Well By _____

11. PLAT



SW ¼ of NW ¼ of SE ¼ of SEC 9 :
WP 22 N N S; RGE 14 E EIM, ~~WIM, ECM~~

12. PUMP INFORMATION

Pump Type Red Jacket
Power Source 220 V
Rated Capacity 10 gal min gpm.
Depth of Bowls or Cylinder 93 ft.

13. CERTIFICATION

The work described above was done under my supervision, and this report is true and correct to the best of my knowledge.

Name Louis Jennings License # WD-265
Address Rt. 2, Box 96 Phone # (918)341-0195
Claremore, OK 74017
Signed _____ Date 12-28-83

USE ADDITIONAL SHEETS IF NECESSARY

FORM 424-10 76

White — Water Resources Board
Canary — Drillers Copy
Pink — Drillers Copy

#15772

STATE OF OKLAHOMA
WATER RESOURCES BOARD
1000 N E. 10th St., P O Box 53585
Oklahoma City, Oklahoma 73152

Application No. ______
Aquifer ______
Steam System Code ______
Use Code ______
County ______
(Official Use Only)

MULTI-PURPOSE WATER WELL REPORT

NE

1. OWNER Walt Morris ADDRESS 15005 E. 131st ST. North
Collinsville OK 74021 PHONE 371-5584

2. LEGAL DESCRIPTION OF WELL
SE ¼ of NE ¼ of NW ¼ of sec. 34 ; TWP. 22 (N) S; Rge. 14 (EIM) WIM ECM; COUNTY Rogers

3. TYPE OF WORK
☒ New Well ☐ Plugging
☐ Reconditioning Work ☐ Test

4. (PROPOSED) / PAST USE
☒ Domestic ☐ Irrigation ☐ Stock
☐ Municipal ☐ Industrial ☐ Test

5. DRILLING METHOD
☒ Rotary ☐ Rev. Rotary
☐ Cable ☐ Other ______

6. LOG

Material	From	To	Saturated ✓
Soil - Clay	0	3	
Sandstone	3	14	
Shale	14	17	
Sandstone	17	38	✓
Shale	38	41	
Sandstone	41	46	✓
Shale ~~Sandstone~~	46	49	
Sandstone	49	53	✓
Shale	53	54½	
Sandstone	54½	60	✓
Shale	60	61	
Sandstone	61	74	✓
Coal/Black shale	74	77	
Shale	77	98	
Sandstone	98	99	?
Shale	99	177	

RECEIVED
MAR 27 1984

7. NEW WELL CONSTRUCTION DATA

Dates: Started 3-21-84 Completed 3-22-84
Contractor Craber Drilling
Driller Craig Treiber
Diameter Hole 8" - 97' ~~Botto~~ in. Total Depth 177' ft.
middle 6¼ 97-177 bottom

CASING RECORD

Diameter	From	To
4 in.	+1 ft.	110 ft.
in.	ft.	ft.

Surface Seal: ☒ Yes ☐ No Type: Cement
Depth of Seal: 12 ft.
Gravel Packed: 38"
Gravel Packed From 177 ft. to 12 ft.
Amount Used: 1¾ Tons

PERFORATION RECORD

Type 1/16 Slots From 54 ft. To 74 ft.
Size ______ From ~~20~~ 96 ft. To 100 ft.
" ______ From 36 ft. To 50 ft.

8. WELL TEST DATA

Static Water Level Below Land Surface 27½' ft.
If Artesian: Flows —— gpm.
Water Temp. 60 °c/f Quality good - some sulphur odor pH 7.0

BAILER TEST

Drawdown —— ft. After Pumping ______ hrs. At ______ gpm.
Size of Bailer: ______ gal.

PUMPING TEST

Drawdown —— ft. After Pumping 1½ hrs. At 7½ gpm.

9. PLUGGING DATA

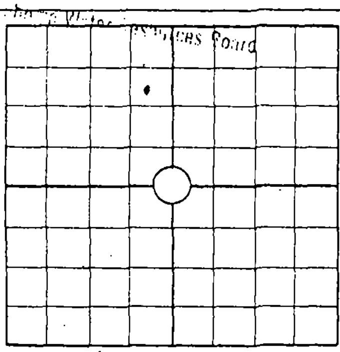
Date Plugged ______
Backfilled With ______ Material To ______ ft.
Grouted or Cemented From ______ ft. To ______ ft.
Plot Location in Item 11. Show Distances From 2 Section Lines.

10. RECONDITIONING WORK

Date Completed ______
☐ Replaced Casing From ______ ft. To ______ ft.
☐ Replaced Screen From ______ ft. To ______ ft.
Deepened Well From ______ ft. To ______ ft.
Redeveloped Well By ______

11. PLAT

10 AC.



SE ¼ of NE ¼ of NW ¼ of SEC 34 ;
TWP 22 (N) S; RGE 14 (EIM),WIM,ECM

12. PUMP INFORMATION

Pump Type To be installed
Power Source By
Rated Capacity Owner gpm.
Depth of Bowls or Cylinder ______ ft.

13. CERTIFICATION

The work described above was done under my supervision, and this report is true and correct to the best of my knowledge.

Name Craig Treiber License # WD-238
Address 6605 E. 103 ST. South Tulsa Phone # 299-7909
Signed Craig L. Treiber Date 3-23-84

USE ADDITIONAL SHEETS IF NECESSARY

FORM 374-10 76

White — Water Resources Board
Canary — Drillers Copy
Pink — Drillers Copy

#15723

STATE OF OKLAHOMA
WATER RESOURCES BOARD
1000 N.E. 10th St., P.O. Box 53585
Oklahoma City, Oklahoma 73152

Application No. [redacted]
Aquifer
Steam System Code
Use Code
County
(Official Use Only)

MULTI-PURPOSE WATER WELL REPORT

1. OWNER Bob Bratton ADDRESS RR# 2 BOx 882
Collinsville, Okla. PHONE 918-371-3752

2. LEGAL DESCRIPTION OF WELL EIM [redacted]
NW ¼ of NW ¼ of NW ¼ of sec. 34 ; TWP. 22 N Rge. 14 [redacted] COUNTY Rogers

3. TYPE OF WORK
☒ New Well ☐ Plugging
☐ Reconditioning Work ☐ Test

4. PROPOSED / PAST USE
☒ Domestic ☐ Irrigation ☐ Stock
☐ Municipal ☐ Industrial ☐ Test

5. DRILLING METHOD
☐ Rotary ☐ Rev. Rotary
☒ Cable ☐ Other

6. LOG

Material	From	To	Saturated
soil	0	2	
sandrock	2	38	x
coal	38	39	
sandrock	39	80	x
sandy shale	80	103	

RECEIVED
SEP 28 1984
Oklahoma

7. NEW WELL CONSTRUCTION DATA

Dates: Started 8-13-84 Completed 8-20-84
Contractor I&J Jennings Drilling Co.
Driller Louis Jennings
Diameter Hole 12 in. Total Depth 103 ft.

CASING RECORD

Diameter		From	To
5" PVC 200#	in.	1' above ground	11 ft.
	in.	ft.	ft.

Surface Seal: ☒ Yes ☐ No Type: cement
Depth of Seal: 11 ft.
Gravel Packed:
Gravel Packed From ft. to ft.
Amount Used:

PERFORATION RECORD

Type From ft. To ft.
Size From ft. To ft.
" From ft. To ft.

8. WELL TEST DATA

Static Water Level Below Land Surface 13 ft.
If Artesian: Flows gpm.
Water Temp. 64 ☒ f Quality good

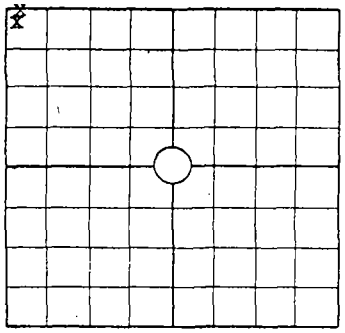
BAILER TEST
bailed well dry let set 15 min. well made 45 gal.
Drawdown ft. After Pumping hrs. At gpm.
Size of Bailer: 30 gal.

PUMPING TEST
Drawdown ft. After Pumping hrs. At gpm.

9. PLUGGING DATA
Date Plugged
Backfilled With Material To ft.
Grouted or Cemented From ft. To ft.
Plot Location in Item 11. Show Distances From 2 Section Lines.

10. RECONDITIONING WORK
Date Completed
☐ Replaced Casing From ft. To ft.
☐ Replaced Screen From ft. To ft.
Deepened Well From ft. To ft.
Redeveloped Well By

11. PLAT



NW ¼ of NW ¼ of NW ¼ of SEC 34 ;
TWP 22 N RGE 14 EIM [redacted]

12. PUMP INFORMATION
Pump Type
Power Source
Rated Capacity gpm.
Depth of Bowls or Cylinder ft.

13. CERTIFICATION
The work described above was done under my supervision, and this report is true and correct to the best of my knowledge.

Name Louis Jennings License # WD265
Address RR#2 box 96 Claremore, OK. Phone # 918-341-0195
Signed Louis Jennings Date 9-27-84

USE ADDITIONAL SHEETS IF NECESSARY

FORM 424-10 78

White — Water Resources Board
Canary — Drillers Copy
Pink — Drillers Copy

15774

STATE OF OKLAHOMA
WATER RESOURCES BOARD
1000 N.E. 10th St. P.O. Box 53585
Oklahoma City, Oklahoma 73152

Application No. [redacted]
Aquifer
Steam System Code
Use Code
County
(Official Use Only)

MULTI-PURPOSE WATER WELL REPORT

1. OWNER Otis W. Winchester ADDRESS RR#2 box 815
Collinsvile, Okla. 74021 PHONE 918-371-3059

2. LEGAL DESCRIPTION OF WELL EIM [redacted]
NE ¼ of NE ¼ of NE ¼ of sec. 35 ; TWP. 22 N Rge. 14 E COUNTY Rogers

3. TYPE OF WORK
☒ New Well ☐ Plugging
☐ Reconditioning Work ☐ Test

4. PROPOSED / PAST USE
☒ Domestic ☐ Irrigation ☐ Stock
☐ Municipal ☐ Industrial ☐ Test

5. DRILLING METHOD
☐ Rotary ☐ Rev. Rotary
☒ Cable ☐ Other

6. LOG

Material	From	To	Saturated ✓
soil	0	2	
sandy clay	2	6	
sandrock	6	89	X
sandy shale	89	98	
sandrock	98	100	

RECEIVED
AUG 15 1984
Oklahoma Water Resources Board

7. NEW WELL CONSTRUCTION DATA
Dates: Started 7/10/84 Completed 7/13/84
Contractor L & J Jennings Drilling Co.
Driller Louis Jennings
Diameter Hole 12 in. Total Depth 100 ft.

CASING RECORD

Diameter	From	To
5" PVC 200 ✓ in.	1' above ground ft.	20 ft.
in.	ft.	ft.

Surface Seal: ☒ Yes ☐ No Type: cement
Depth of Seal: 20 ft.
Gravel Packed:
Gravel Packed From ft. to ft.
Amount Used:

PERFORATION RECORD
Type From ft. To ft.
Size From ft. To ft.
" From ft. To ft.

8. WELL TEST DATA
Static Water Level Below Land Surface 17 ft.
If Artesian: Flows gpm.
Water Temp. 68 °F Quality good

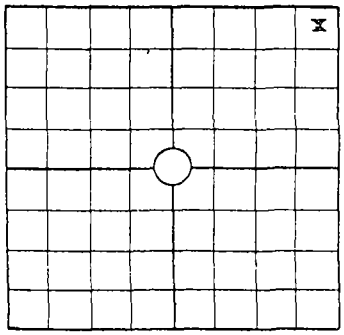
BAILER TEST
Bailed dry 1st set for 1hr. well made 120 gal.
Drawdown ft. After Pumping hrs. At gpm.
Size of Bailer: gal.

PUMPING TEST
Drawdown ft. After Pumping hrs. At gpm.

9. PLUGGING DATA
Date Plugged
Backfilled With Material To ft.
Grouted or Cemented From ft. To ft.
Plot Location in Item 11. Show Distances From 2 Section Lines.

10. RECONDITIONING WORK
Date Completed
☐ Replaced Casing From ft. To ft.
☐ Replaced Screen From ft. To ft.
Deepened Well From ft. To ft.
Redeveloped Well By

11. PLAT



NE ¼ of NE ¼ of NE ¼ of SEC 35;
TWP 22 N RGE 14 EIM [redacted]

12. PUMP INFORMATION
Pump Type
Power Source
Rated Capacity gpm.
Depth of Bowls or Cylinder ft.

13. CERTIFICATION
The work described above was done under my supervision, and this report is true and correct to the best of my knowledge.

Name Louis Jennings License # WD265
Address RR2 box 96 Claremore, Okla. Phone # 918-341-0195
Signed [signature] Date 7-15-84

USE ADDITIONAL SHEETS IF NECESSARY

Reference 11

FAX TRANSMITTAL FORM

DATE: 11/10/92 No. of Pages Including Cover: 7

TO: David Crow

MESSAGE: Unfortunately, We do not have much data in our database for Tulsa and Rogers County.

FROM: Scott Christenson

U.S. Geological Survey
Water Resources Division
202 N.W. 66th, Bldg. 7
Oklahoma City, OK 73116

Commercial Number: (405) 231-4256
FTS: 736-4256

FAX Number: (405) 231-5079
FTS: 736-5079

LOCAL WELL NUMBER	OWNER	DEPTH DRILLED (FEET)	DEPTH OF WELL (FEET)	ALTITUDE OF LAND SURFACE (FEET)	WATER LEVEL (FEET)	WATER-LEVEL DATE	AQUIFER CODE	PRIMARY USE OF WATER
21N-14E-10 CBD 1	—	1925	1925	680	—	—	—	-
22N-14E-23 CCB 1	KEPLER BERNICE	—	40.0	620	19.75	06-10-77	323SMNL	U - Unused
22N-14E-26 CBC 1	JONES G W	—	55.0	640	22	07-23-80	110ALVM	-
21N-13E-10 DAA 1	STANLEY F	—	46.0	670	9.15	06-27-77	323SMNL	U
21N-14E-05 AAB 1	GOSVENER ATLAS	—	82.0	655	20.06	06-08-77	323SMNL	I - Irrigation
21N-14E-20 BBC 1	SMITH HAYWARD	—	—	—	—	—	323SMNL	S - Stock
22N-13E-13 ADC 1	MCALANERY KENNETH	—	90.0	—	—	—	323SMNL	H
22N-13E-26 BCC 1	HEINRICHS H	—	26.0	—	3.39	06-08-77	323SMNL	U
22N-14E-08 ACD 1	ABEL, DONALD L	—	30.5	635	—	—	—	H - Domestic

323 SMNL = Seminole Formation

110 ALVM = Alluvium

RECORD NUMBER ——— 97704222
STATION NUMBER ——— 361836095540801
STATION NAME ——— 21N-13E-10 DAA 1
DATE OF COLLECTION — 06-27-1977 1030 - -

PARAMETERS INCLUDED IN THIS RECORD ARE—

NO.	CODE.	REMARK	VALUE.....	DESCRIPTION.....
1	00010		16.0	WATER TEMPERATURE, DEGREES CELSIUS
2	00095		250	SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE
3	00400		7.4	PH, WATER, WHOLE, FIELD, STANDARD UNITS
4	00940		53	CHLORIDE DISSOLVED (MG/L AS CL)
5	00945		750	SULFATE DISSOLVED (MG/L AS SO4)
6	01046		40	IRON DISSOLVED (UG/L AS FE)

RECORD NUMBER ——— 97704223
STATION NUMBER ——— 361838095540801
STATION NAME ——— 21N-13E-10 DAA 1
DATE OF COLLECTION — 06-28-1977 1030 - -

PARAMETERS INCLUDED IN THIS RECORD ARE—

NO.	CODE.	REMARK	VALUE.....	DESCRIPTION.....
1	00010		16.0	WATER TEMPERATURE, DEGREES CELSIUS
2	00027		1028	AGENCY COLLECTING SAMPLE (CODE NUMBER)
3	00028		9999	AGENCY ANALYZING SAMPLE (CODE NUMBER)
4	00095		250	SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE
5	00400		7.4	PH, WATER, WHOLE, FIELD, STANDARD UNITS
6	00940		53	CHLORIDE DISSOLVED (MG/L AS CL)
7	00945		750	SULFATE DISSOLVED (MG/L AS SO4)
8	01046		40	IRON DISSOLVED (UG/L AS FE)

RECORD NUMBER ——— 97704217
STATION NUMBER ——— 361727095505001
STATION NAME ——— 21N-14E-20 BBC 1
DATE OF COLLECTION — 06-27-1977 1530 - -

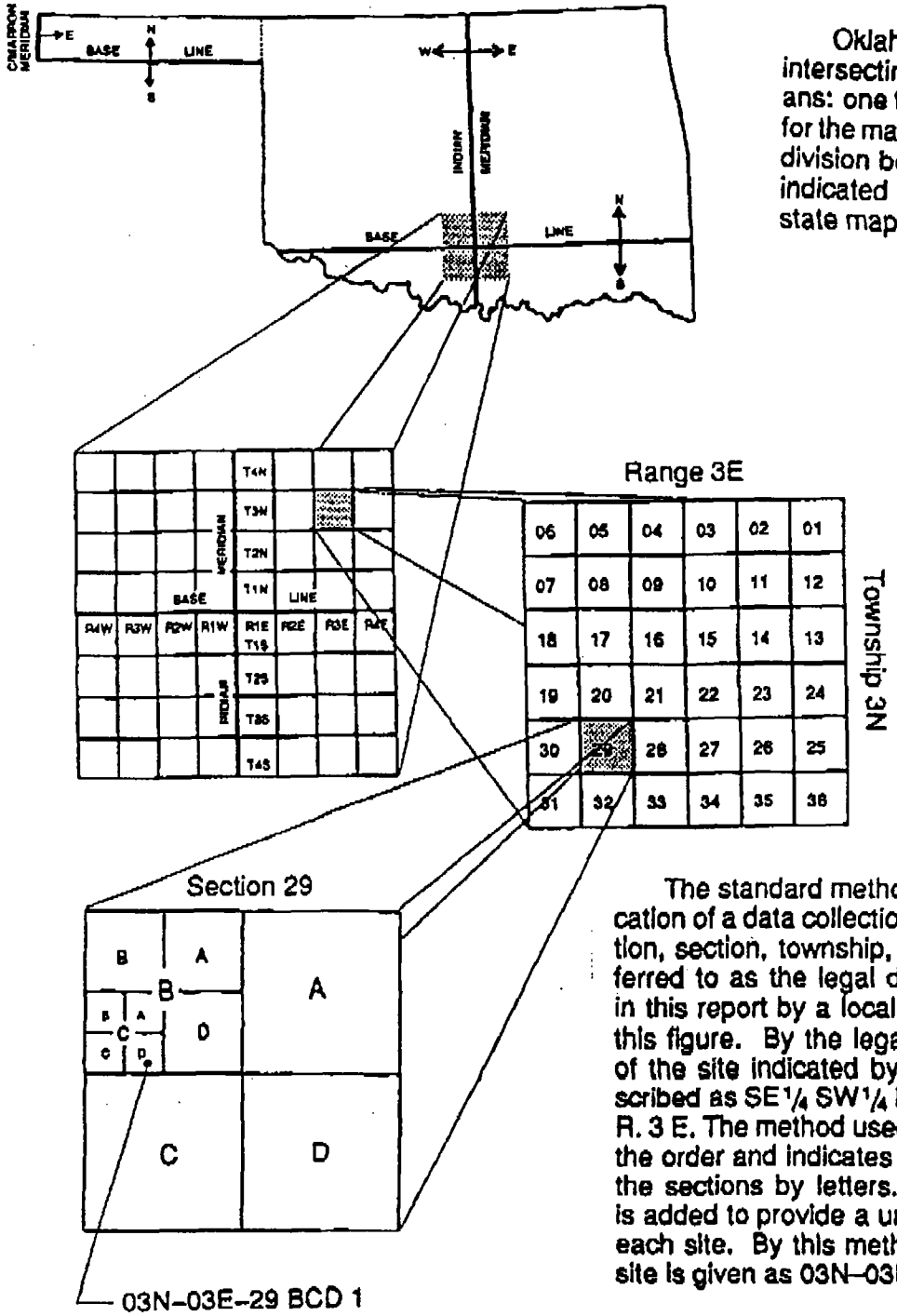
PARAMETERS INCLUDED IN THIS RECORD ARE—

NO.	CODE.	REMARK	VALUE.....	DESCRIPTION.....
1	00010		28.5	WATER TEMPERATURE, DEGREES CELSIUS
2	00027		1028	AGENCY COLLECTING SAMPLE (CODE NUMBER)
3	00028		9999	AGENCY ANALYZING SAMPLE (CODE NUMBER)
4	00095		585	SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE
5	00400		5.9	PH, WATER, WHOLE, FIELD, STANDARD UNITS
6	00940		65	CHLORIDE DISSOLVED (MG/L AS CL)
7	00945		76	SULFATE DISSOLVED (MG/L AS SO4)
8	01046		60	IRON DISSOLVED (UG/L AS FE)

RECORD NUMBER ——— 98004965
STATION NUMBER ——— 362408095503601
STATION NAME ——— 22N-14E-08 ACD 1
DATE OF COLLECTION — 07-22-1980 1535 - -

PARAMETERS INCLUDED IN THIS RECORD ARE—

NO.	CODE.	REMARK	VALUE.....	DESCRIPTION.....
1	00010		31.5	WATER TEMPERATURE, DEGREES CELSIUS
2	00095		3460	SPECIFIC CONDUCTANCE, US/CM @ 25 DEGREES CENTIGRADE
3	00400		7.1	PH, WATER, WHOLE, FIELD, STANDARD UNITS
4	00940		280	CHLORIDE DISSOLVED (MG/L AS CL)
5	00945		1200	SULFATE DISSOLVED (MG/L AS SO4)
6	01046		60	IRON DISSOLVED (UG/L AS FE)
7	01056		200	MANGANESE DISSOLVED (UG/L AS MN)



Oklahoma has two systems of intersecting base lines and meridians: one for the Panhandle, and one for the major portion of the state. The division between the two systems is indicated by the dashed line on the state map to the left.

The standard method for describing the location of a data collection site by fractional section, section, township, and range, usually referred to as the legal description, is replaced in this report by a local identifier illustrated by this figure. By the legal method, the location of the site indicated by the dot would be described as SE¼ SW¼ NW¼, Sec. 29, T. 3 N., R. 3 E. The method used in this report changes the order and indicates quarter subdivisions of the sections by letters. A sequence number is added to provide a unique local identifier for each site. By this method, the location of the site is given as 03N–03E–29 BCD 1.

Figure 7.--Explanation of local identifier.

Reference 12

Table 1. Selected Population and Housing Characteristics: 1990
Rogers County, Oklahoma

The population counts set forth herein are subject to possible correction for undercount or overcount. The United States Department of Commerce is considering whether to correct these counts and will publish corrected counts, if any, not later than July 1, 1991.

Total population	55,170
SEX	
Male	27,231
Female	27,939
AGE	
Under 5 years	4,046
5 to 17 years	11,626
18 to 20 years	2,353
21 to 24 years	2,316
25 to 44 years	17,099
45 to 54 years	7,034
55 to 59 years	2,810
60 to 64 years	2,271
65 to 74 years	3,349
75 to 84 years	1,776
85 years and over	490
Median age	33.9
Under 18 years	15,672
Percent of total population	28.4
65 years and over	5,615
Percent of total population	10.2
HOUSEHOLDS BY TYPE	
Total households	19,866
Family households (families)	15,928
Married-couple families	13,861
Percent of total households	69.8
Other family, male householder	537
Other family, female householder	1,530
Nonfamily households	3,938
Percent of total households	19.8
Householder living alone	3,528
Householder 65 years and over	1,536
Persons living in households	54,587
Persons per household	2.75
GROUP QUARTERS	
Persons living in group quarters	583
Institutionalized persons	485
Other persons in group quarters	98
RACE AND HISPANIC ORIGIN	
White	47,242
Black	456
Percent of total population	0.8
American Indian, Eskimo, or Aleut	7,117
Percent of total population	12.9
Asian or Pacific Islander	188
Percent of total population	0.3
Other race	167
Hispanic origin (of any race)	618
Percent of total population	1.1

Total housing units	21,455
OCCUPANCY AND TENURE	
Occupied housing units	19,866
Owner occupied	15,764
Percent owner occupied	79.4
Renter occupied	4,102
Vacant housing units	1,589
For seasonal, recreational, or occasional use	68
Homeowner vacancy rate (percent)	2.5
Rental vacancy rate (percent)	8.9
Persons per owner-occupied unit	2.79
Persons per renter-occupied unit	2.60
Units with over 1 person per room	561
UNITS IN STRUCTURE	
1-unit, detached	16,401
1-unit, attached	196
2 to 4 units	678
5 to 9 units	331
10 or more units	390
Mobile home, trailer, other	3,459
VALUE	
Specified owner-occupied units	10,636
Less than $50,000	3,324
$50,000 to $99,999	6,162
$100,000 to $149,999	928
$150,000 to $199,999	161
$200,000 to $299,999	47
$300,000 or more	14
Median (dollars)	63,700
CONTRACT RENT	
Specified renter-occupied units paying cash rent	3,525
Less than $250	1,529
$250 to $499	1,807
$500 to $749	179
$750 to $999	9
$1,000 or more	1
Median (dollars)	268
RACE AND HISPANIC ORIGIN OF HOUSEHOLDER	
Occupied housing units	19,866
White	17,477
Black	163
Percent of occupied units	0.8
American Indian, Eskimo, or Aleut	2,137
Percent of occupied units	10.8
Asian or Pacific Islander	42
Percent of occupied units	0.2
Other race	47
Hispanic origin (of any race)	155
Percent of occupied units	0.8

The user should note that there are limitations to many of these data. Please refer to the technical documentation provided with Summary Tape File 1A for a further explanation on the limitations of the data.

Table 1. Selected Population and Housing Characteristics: 1990
Tulsa County, Oklahoma

The population counts set forth herein are subject to possible correction for undercount or overcount. The United States Department of Commerce is considering whether to correct these counts and will publish corrected counts, if any, not later than July 1, 1991.

Total population	503,341
SEX	
Male	242,405
Female	260,936
AGE	
Under 5 years	38,835
5 to 17 years	92,659
18 to 20 years	21,926
21 to 24 years	28,768
25 to 44 years	170,157
45 to 54 years	50,597
55 to 59 years	21,580
60 to 64 years	20,592
65 to 74 years	33,970
75 to 84 years	18,243
85 years and over	6,014
Median age	32.7
Under 18 years	131,494
Percent of total population	26.1
65 years and over	58,227
Percent of total population	11.6
HOUSEHOLDS BY TYPE	
Total households	202,537
Family households (families)	135,243
Married-couple families	107,430
Percent of total households	53.0
Other family, male householder	5,439
Other family, female householder	22,374
Nonfamily households	67,294
Percent of total households	33.2
Householder living alone	58,318
Householder 65 years and over	18,463
Persons living in households	492,508
Persons per household	2.43
GROUP QUARTERS	
Persons living in group quarters	10,833
Institutionalized persons	5,399
Other persons in group quarters	5,434
RACE AND HISPANIC ORIGIN	
White	417,737
Black	49,618
Percent of total population	9.9
American Indian, Eskimo, or Aleut	25,401
Percent of total population	5.0
Asian or Pacific Islander	5,976
Percent of total population	1.2
Other race	4,609
Hispanic origin (of any race)	11,958
Percent of total population	2.4

Total housing units	227,834
OCCUPANCY AND TENURE	
Occupied housing units	202,537
Owner occupied	122,944
Percent owner occupied	60.7
Renter occupied	79,593
Vacant housing units	25,297
For seasonal, recreational, or occasional use	450
Homeowner vacancy rate (percent)	4.0
Rental vacancy rate (percent)	12.4
Persons per owner-occupied unit	2.59
Persons per renter-occupied unit	2.19
Units with over 1 person per room	5,512
UNITS IN STRUCTURE	
1-unit, detached	148,654
1-unit, attached	7,721
2 to 4 units	13,743
5 to 9 units	12,863
10 or more units	35,370
Mobile home, trailer, other	9,483
VALUE	
Specified owner-occupied units	108,819
Less than $50,000	37,803
$50,000 to $99,999	54,022
$100,000 to $149,999	9,717
$150,000 to $199,999	3,507
$200,000 to $299,999	2,318
$300,000 or more	1,452
Median (dollars)	60,700
CONTRACT RENT	
Specified renter-occupied units paying cash rent	75,793
Less than $250	24,938
$250 to $499	44,074
$500 to $749	5,222
$750 to $999	936
$1,000 or more	623
Median (dollars)	296
RACE AND HISPANIC ORIGIN OF HOUSEHOLDER	
Occupied housing units	202,537
White	172,821
Black	17,875
Percent of occupied units	8.8
American Indian, Eskimo, or Aleut	8,609
Percent of occupied units	4.3
Asian or Pacific Islander	1,794
Percent of occupied units	0.9
Other race	1,438
Hispanic origin (of any race)	3,705
Percent of occupied units	1.8

The user should note that there are limitations to many of these data. Please refer to the technical documentation provided with Summary Tape File 1A for a further explanation on the limitations of the data.

Reference 13

MEMORANDUM

November 4, 1992

To: Acme Brick PA file

From: David S. Crow, OSDH Environmental Specialist DSC

This memorandum is to serve as reference for the attached material used in determining the public water supply for the City of Collinsville. The source used is the 1988 Public Water Supply Report.

PUBLIC WATER SUPPLY REPORT

FACILITY: WASHINGTON CO RWD #3(OLD,#2)
OPERATOR: WASHINGTON CO RWD#3 (OLD,#2)
ADDRESS : PO BOX 70
COLLINSVILLE OK 74021
PHONE : 918 3712055
SYSTEMS SERVED:
3007219 SLEEPY VALLEY MHP #2
3007222 COLLINSVILLE MHP

MSIS-NUMBER : 1021406
COUNTY : TULSA
POPULATION SERVED: 5100

SOURCE OF WATER:
COLLINSVILLE LK

LEGAL DESCRIPTION
S T R M

STORAGE CAPACITY : 1160000 GALLONS
AVERAGE PRODUCTION: 1000000 GALLONS/DAY
PRODUCTION CAPACITY: 1400000 GALLONS/DAY

PARAMETERS	UNITS	1988	1986	1985	1984
HARDNESS,CALCIUM	MG/L		114.6	126.0	
CHLORIDE	MG/L	16	17	19	27
FLUORIDE TOTAL	MG/L	0.17	< 0.10	0.25	0.19
NITRITE-NITRATE AS N	MG/L	< 0.5	< 0.5	< 0.50	< 0.5
PH (LAB)	STD UNIT		7.30	7.50	7.40
SPECIFIC CONDUCTANCE	UMHOS/CM	326			
SULFATE	MG/L		100	52	89
SOLIDS,TOTAL DISS	MG/L		234	208	282
ALKALINITY,TOTAL	MG/L		89.0	163.0	78
HARDNESS,TOTAL	MG/L		189	173	218
TURBIDITY	NTU	2.0	< 1.00	1.00	1
WATER TEMPERATURE	DEG CELS		11.0		
ARSENIC-TOTAL	UG/L	< 15	< 10	< 10	< 10
BARIUM TOTAL	UG/L	45	< 200	53	210
CADMIUM-TOTAL	UG/L	< 2	< 2	< 2	< 2
CHROMIUM-TOTAL	UG/L	< 10	< 10	< 10	< 10
COPPER-TOTAL	UG/L		< 4	4	26
IRON-TOTAL	UG/L		< 100	< 10	< 100
LEAD-TOTAL	UG/L	< 20	< 20	< 20	< 20
MANGANESE-TOTAL	UG/L		< 20	13	20.0
MERCURY-TOTAL	UG/L	< 0.5	< 0.5	< 0.5	< 0.5
SELENIUM-TOTAL	UG/L	< 5	< 5	< 5	< 5
SILVER-TOTAL	UG/L	< 3	< 3	< 7	< 3.0
SODIUM-TOTAL	MG/L	< 10	13	< 10	19.00
ZINC-TOTAL	UG/L		< 4	9	14
CORROSIVITY	(CALC)		- 0.83	- 0.13	
2,4-D IN WATER	UG/L				< 20.000
SILVEX 2,4,5 TP WTR	UG/L				< 2.000
LINDANE IN WATER	UG/L				< 0.02
ENDRIN IN WATER	UG/L				< 0.03
METHOXYCHLOR IN WTR	UG/L				< 0.07
TOXAPHENE IN WATER	UG/L				< 0.300

PUBLIC WATER SUPPLY REPORT

FACILITY: WASHINGTON CO RWD #3 (NEW,#1)
OPERATOR: WASHINGTON CO RWD #3 (NEW,#1)
ADDRESS : PO BOX 70
COLLINSVILLE OK 74021
PHONE : 918 3712055
SYSTEMS SERVED:
3007228 COLLINSVILLE MHP

MSIS-NUMBER : 1021418
COUNTY : TULSA
POPULATION SERVED: 2500

SOURCE OF WATER: LEGAL DESCRIPTION
OOLAGAH LAKE S T R M
RECIRC POND S T R M

STORAGE CAPACITY : 1200000 GALLONS
AVERAGE PRODUCTION: 500000 GALLONS/DAY
PRODUCTION CAPACITY: 2000000 GALLONS/DAY

PARAMETERS	UNITS	1988	1986	1985	
HARDNESS,CALCIUM	MG/L		100.0	118.0	
CHLORIDE	MG/L	21	23	19	
FLUORIDE TOTAL	MG/L	0.20	0.24	0.24	
NITRITE-NITRATE AS N	MG/L	< 0.5	< 0.5	< 0.50	
PH (LAB)	STD UNIT		7.20	7.40	
SPECIFIC CONDUCTANCE	UMHOS/CM	345			
SULFATE	MG/L		72	46	
SOLIDS,TOTAL DISS	MG/L		269	198	
ALKALINITY,TOTAL	MG/L		107.0	166.0	
HARDNESS,TOTAL	MG/L		186	173	
TURBIDITY	NTU	2.0	1.00	1.00	
ARSENIC-TOTAL	UG/L	< 15	< 10	< 10	
BARIUM TOTAL	UG/L	38	< 200	62	
CADMIUM-TOTAL	UG/L	< 2	< 2	< 2	
CHROMIUM-TOTAL	UG/L	< 10	< 10	< 10	
COPPER-TOTAL	UG/L		< 6	< 4	
IRON-TOTAL	UG/L		23	< 10	
LEAD-TOTAL	UG/L	< 20	< 20	< 20	
MANGANESE-TOTAL	UG/L		< 10	< 10	
MERCURY-TOTAL	UG/L	< 0.5	< 0.5	< 0.5	
SELENIUM-TOTAL	UG/L	< 5	< 5	< 5	
SILVER-TOTAL	UG/L	< 3	< 3	11	
SODIUM-TOTAL	MG/L	11	12	10	
ZINC-TOTAL	UG/L		24	10	
CORROSIVITY	(CALC)		- 0.73	- 0.23	
2,4-D IN WATER	UG/L		< 20		
SILVEX 2,4,5 TP WTR	UG/L		< 2.000		
LINDANE IN WATER	UG/L		< 0.02		
ENDRIN IN WATER	UG/L		< 0.03		
METHOXYCHLOR IN WTR	UG/L		< 0.07		
TOXAPHENE IN WATER	UG/L		< 0.30		

Reference 14

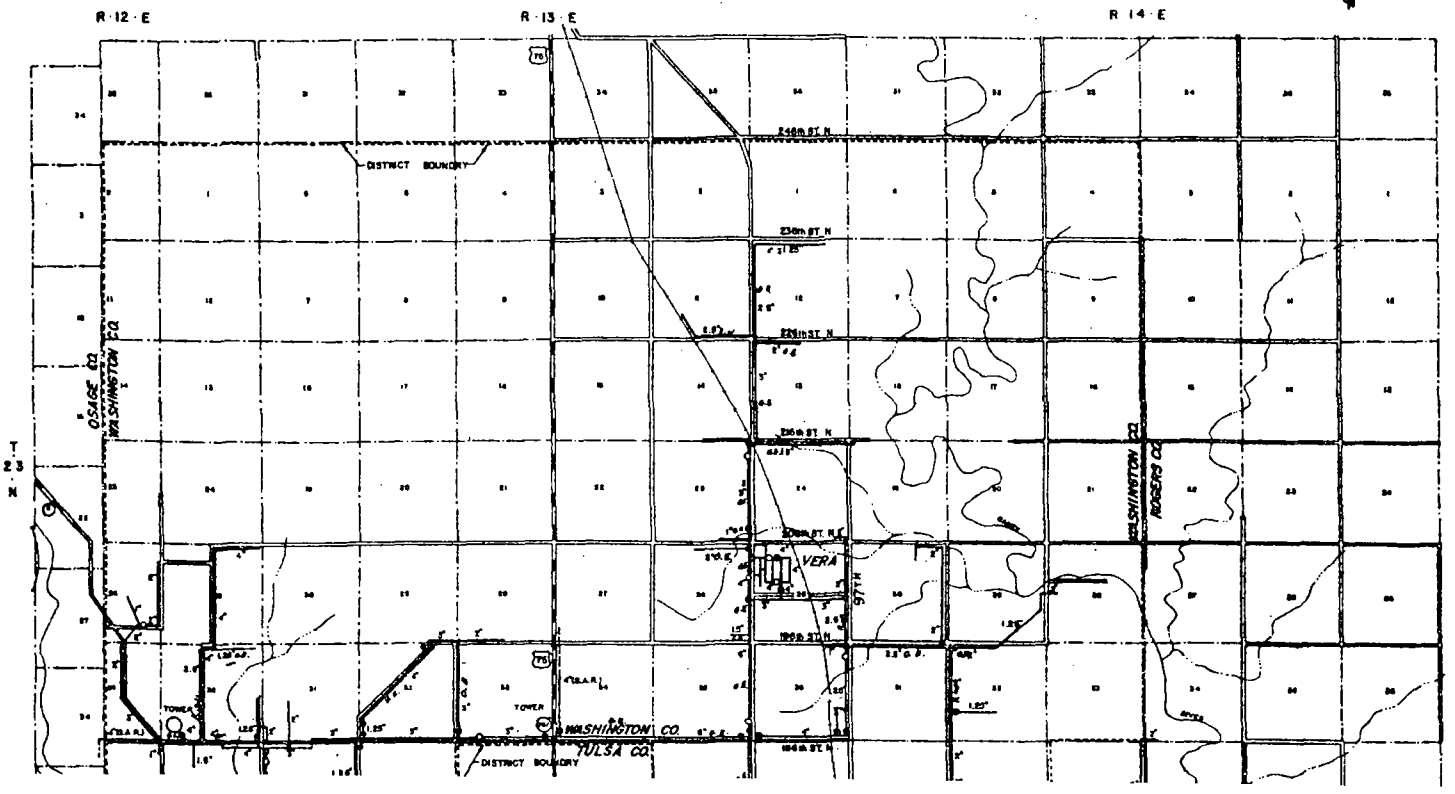
Crow

RECEIVED
OCT 28 1992
Solid Waste Service

RURAL WATER DISTRICT NO. 3

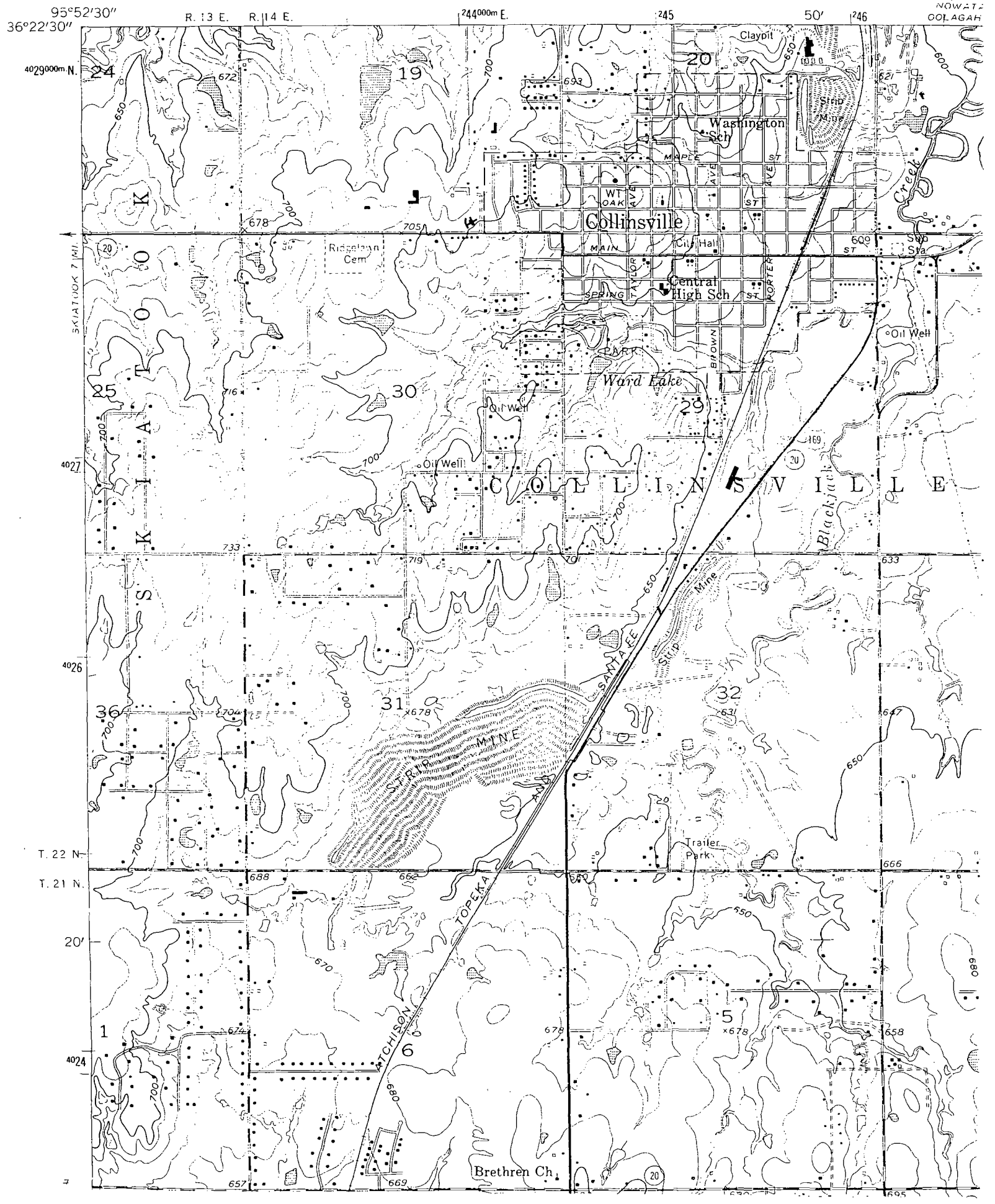
WASHINGTON COUNTY, OKLAHOMA

COLLINSVILLE, OKLAHOMA



Reference 15

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



Reference 16

RECORD OF COMMUNICATION

Date: October 12, 1992

To: Acme Brick Strip Mine PA file

From: David S. Crow, OSDH Environmental Specialist D.S.C.

Subject: Surface water intakes within 15 miles of probable point of entry (PPE).

On Monday October 12, 1992, at about 2:00 p.m., I spoke to Gene Dousett of the Oklahoma Water Resources Board, Stream Water Division concerning surface water intakes within 15-miles downstream of the PPE. According to Gene there are no surface water intakes used for domestic drinking water use or irrigation purposes within the 15-mile target distance. The nearest drinking water intake is located in the W2 SEC 3 T21N R15E, approximately 19 miles downstream from the PPE. This intake has three (3) users. The nearest irrigation intake is located in the E2 SEC 10 T21N R15E, approximately 20 miles downstream from the PPE.

Reference 17

CH 2445-06

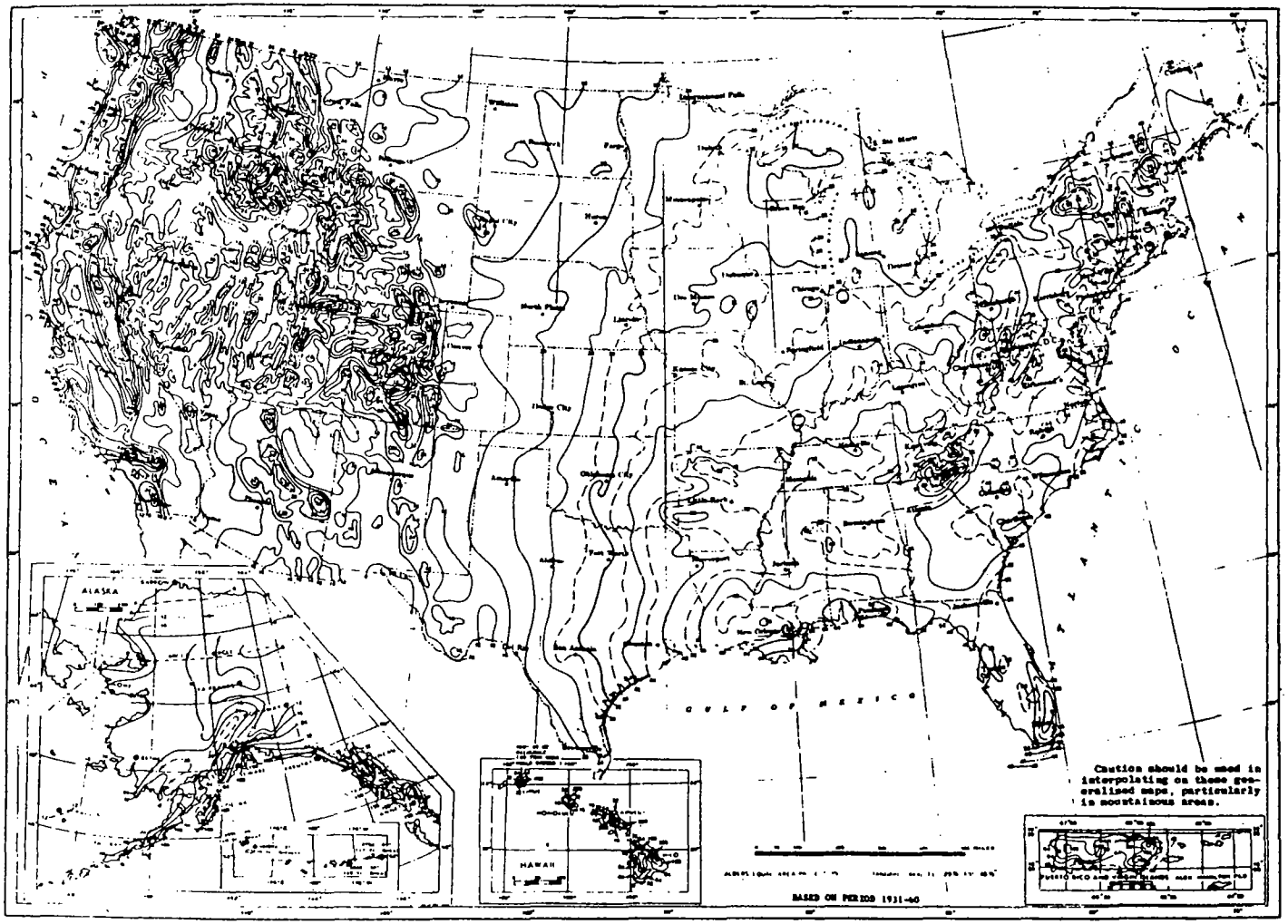
Uncontrolled Hazardous Waste Site Ranking System

A Users Manual
(HW-10)

Originally Published in
the July 16, 1982, *Federal Register*

United States
Environmental Protection
Agency

1984



Source: Climatic Atlas of the United States, U.S. Department of Commerce, National Climatic Center, Ashville, N.C., 1979.

FIGURE 5
NORMAL ANNUAL TOTAL PRECIPITATION (INCHES)

Reference 18

Joan K. Leavitt, M.D.
Commissioner

OKLAHOMA STATE DEPARTMENT OF HEALTH

1000 NE TENTH
OKLAHOMA CITY, OK
73117-1299

AN EQUAL OPPORTUNITY EMPLOYER

October 1, 1992

Ken Morris
Planning Division
Oklahoma Water Resources Board
6000 N. Harvey
P.O. Box 150
Oklahoma City, OK 73101-150

Dear Mr. Morris:

The purpose of this letter is to request information regarding the flood potential of each site listed in the following page. The information provided by your office will be used to describe the flood potential of each site in the preliminary assessments conducted by the OSDH, as authorized by a cooperative agreement with the U.S. Environmental Protection Agency.

For each site, please state the "flood-plain frequency" in **years**. In addition, attach any of the references used to determine the flood potential.

If you have any questions or comments, please do not hesitate to call me at 271-7099, or Richard Brooks at 271-7049.

Sincerely,

David S. Crow
Environmental Specialist

Attachment

Acme Brick Strip Mines: Collinsville, Tulsa Co.
NE4 SE4 NE4 Sec 31 and SW4 NW4 Sec 32 T22N R14E

American Smelting & Refining Co.: Sand Springs, Tulsa Co.
SW4 SW4 Sec11 and SE4 SE4 Sec10 T19N R11E

Bailey-Mulkey Post Co.: Broken Bow, McCurtain Co.
SE4 SW4 Sec12 T6N R25E

Eighty-Niner Plaza Dry Cleaners: Moore, Cleveland Co.
NW4 NW4 NE4 Sec 4 T10N R3W

El Reno Gas and Electric: El Reno, Canadian Co.
SW4 NE4 Sec 9 T12N R7W

Limestone Quarry Dump: Pryor, Mayes Co.
SW4 SW4 SW4 Sec 31 T21N R20E

Long, John Smelters & Refiners: Muskogee, Muskogee Co.
SE4 Sec 34 T15N R18E

M & M Drum Co.: Oklahoma City, Oklahoma Co.
NE4 Sec 4 T11N R3W

Muskogee Brick: Muskogee, Muskogee Co.
SE4 NE4 Sec 23 and NW4 Sec 24 T15N R18E

Oklahoma Stoddard & Solvent: Hennepin, Garvin Co.
NE4 SE4 SE4 Sec 36 T2N R2W

Old M & M Drum Co.: Oklahoma City, Oklahoma Co.
SE4 Sec 32 T12N R3W

Petroleum Electronics Mfg., Inc.: Tulsa, Tulsa Co.
SE4 SE4 Sec 4 T19N R12E

Power Electronics Mfg., Inc: Tulsa, Tulsa Co.
SE4 SE4 Sec 4 T19N R12E

Precision Chrome Co.: Tulsa, Tulsa Co.
SW4 Sec 32 T20N R13E

Rebel Tanks: Chickasha, Grady Co. Hwy 81 (east of Delta Faucet)
NE4 NE4 SW4 Sec 20 T7N R7W

Swan Hose Dump: Stillwater, Payne Co.
SE4 SW4 Sec 20 T20N R2E

Ted Smith Property: Oklahoma City, Oklahoma 2317 South Eastern
SE4 Sec 11 T11N R3W

U.S. Navy Dump Grounds: Norman, Cleveland Co.
SW4 SW4 Sec 8 T8N R2W

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

CITY OF
COLLINSVILLE, OKLAHOMA
TULSA AND ROGERS COUNTIES

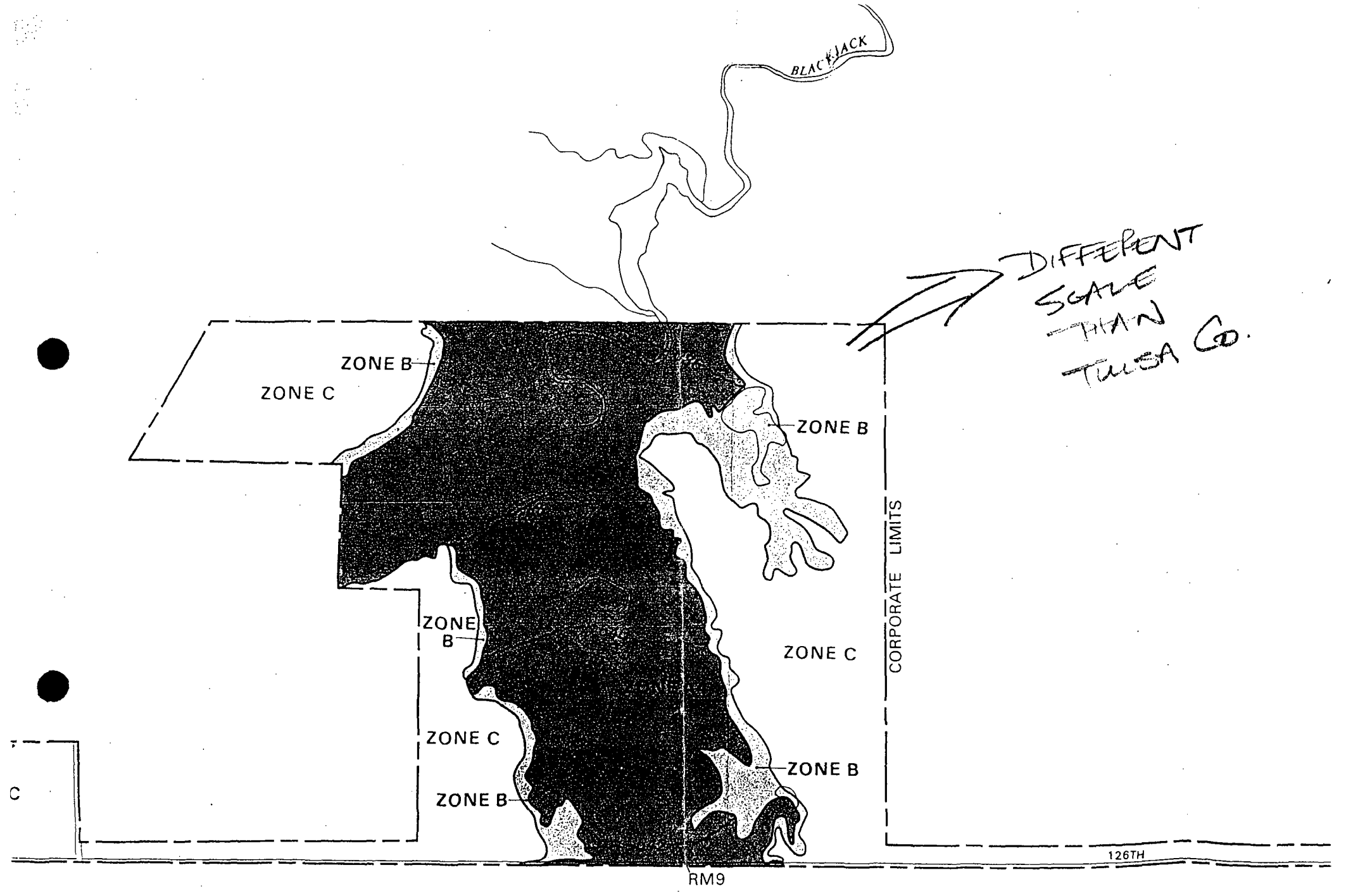
PANEL 4 OF 4
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
400360 0004 A

EFFECTIVE DATE:
JULY 2,1981

federal emergency management agency
federal insurance administration

B


BLACKJACK
DIFFERENT SCALE THAN TULSA CO.
ZONE B
ZONE C
ZONE B
ZONE B
ZONE C
ZONE C
ZONE B
ZONE B
CORPORATE LIMITS
126TH
RM9

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

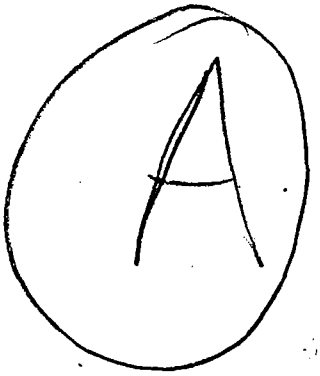
TULSA COUNTY, OKLAHOMA
(UNINCORPORATED AREAS)

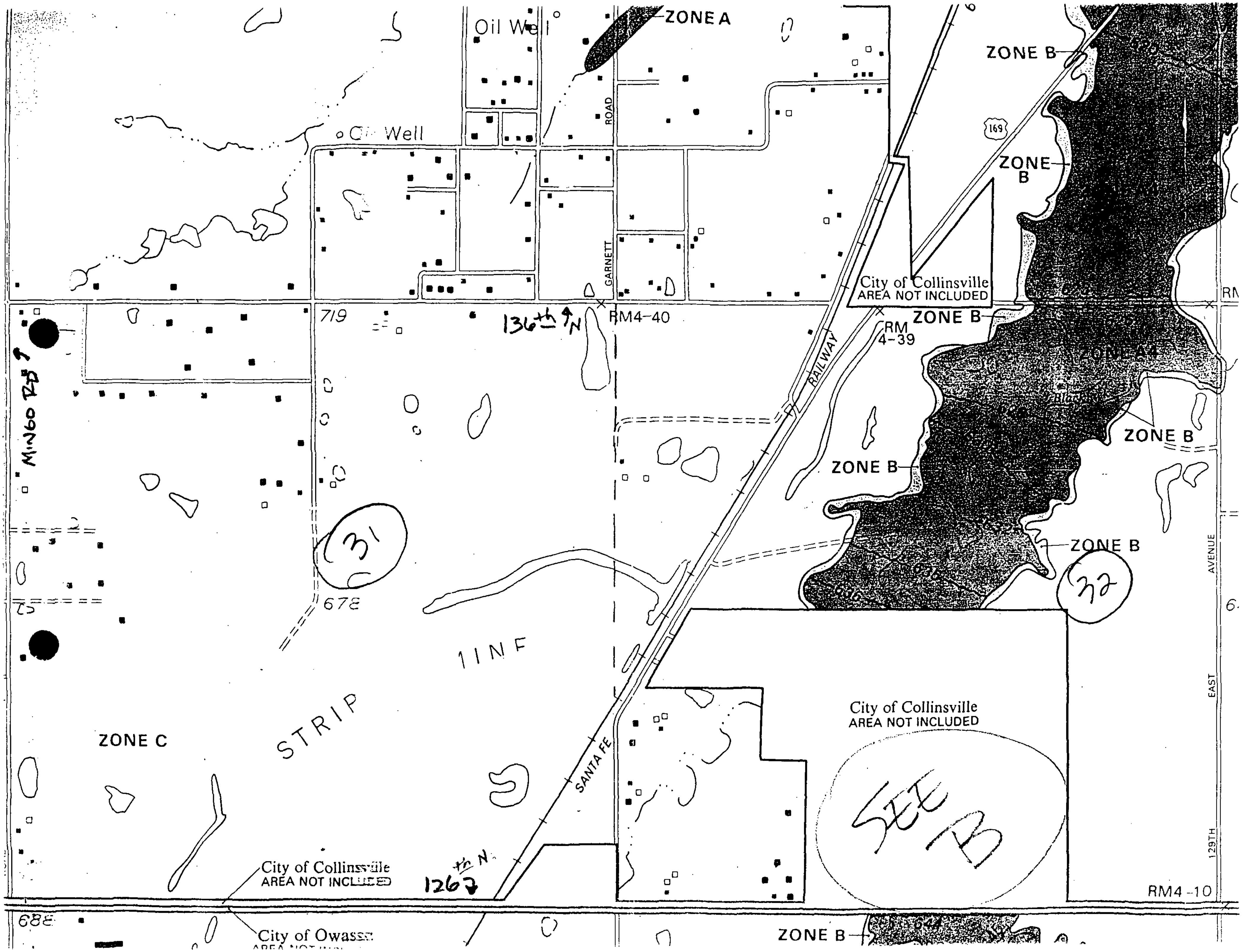
PANEL 35 OF 255
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
400462 0035 B

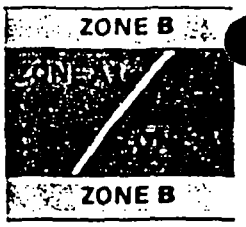
EFFECTIVE DATE:
SEPTEMBER 16, 1982

Federal Emergency Management Agency





ZONE A
Oil Well
Oil Well
ZONE B
ROAD
GARNETT
169
ZONE B
City of Collinsville
AREA NOT INCLUDED
ZONE B
719
136th N
RM4-40
RM 4-39
RAILWAY
ZONE A4
ZONE B
MINGO RD
ZONE B
ZONE B
31
32
678
AVENUE
EAST
129TH
STRIP LINE
ZONE C
SANTA FE
City of Collinsville
AREA NOT INCLUDED
SEE B
City of Collinsville
AREA NOT INCLUDED
126th N
RM4-10
City of Owasso
ZONE B

500-Year Flood Boundary	
100-Year Flood Boundary	
Zone Designations*	
100-Year Flood Boundary	
500-Year Flood Boundary	
Base Flood Elevation Line With Elevation In Feet**	513
Base Flood Elevation in Feet Where Uniform Within Zone**	(EL 987)
Elevation Reference Mark	RM7×
Zone D Boundary	
River Mile	•M1.5

**Referenced to the National Geodetic Vertical Datum of 1929

*EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
AO	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

NOTES TO USER

Certain areas not in the special flood hazard areas (zones A and V) may be protected by flood control structures.

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside special flood hazard areas. The coastal flooding elevations shown may differ significantly from those developed by the National Weather Service for hurricane evacuation planning.

For adjoining map panels, see separately printed Index To Map Panels.

INITIAL IDENTIFICATION:

AUGUST 23, 1974

FLOOD HAZARD BOUNDARY MAP REVISIONS:

MAY 17, 1977

Reference 19

Endangered and Threatened Species of Texas and Oklahoma 1987

(WITH 1988 ADDENDUM)

Texas	Bald eagle	Endangered
	Interior least tern	Endangered
	Whooping crane	Endangered
	Peregrine falcon	Endangered
	Arkansas River shiner	Category 1 Candidate
	Arkansas River speckled chub	Category 2 Candidate
	Texas horned lizard	Category 2 Candidate
	White-faced ibis	Category 2 Candidate
	Ferruginous hawk	Category 2 Candidate
	Long-billed curlew	Category 2 Candidate
	Western Snowy plover	Category 2 Candidate
	Mountain plover	Category 2 Candidate
	Swift fox	Category 2 Candidate
Tillman	Interior least tern	Endangered
	Whooping crane	Endangered
	Texas horned lizard	Category 2 Candidate
	White-faced ibis	Category 2 Candidate
	Ferruginous hawk	Category 2 Candidate
	Long-billed curlew	Category 2 Candidate
	Western Snowy plover	Category 2 Candidate
	Texas kangaroo rat	Category 2 Candidate
Tulsa	Peregrine falcon	Endangered
	Bald eagle	Endangered
	Interior least tern	Endangered
	Piping plover	Threatened
	Prairie mole cricket	Proposed Threatened
	Paddlefish	Category 2 Candidate
	Arkansas River shiner	Category 1 Candidate
	Arkansas River speckled chub	Category 2 Candidate
	Texas horned lizard	Category 2 Candidate
	White-faced ibis	Category 2 Candidate
	Long-billed curlew	Category 2 Candidate
	Western Snowy plover	Category 2 Candidate
	Migrant loggerhead shrike	Category 2 Candidate
Wagoner	Peregrine falcon	Endangered
	Bald eagle	Endangered
	Interior least tern	Endangered
	Piping plover	Threatened
	Prairie mole cricket	Proposed Threatened
	Ozark spiderwort (*Tradescantia ozarkana*)	Category 2 Candidate
	Paddlefish	Category 2 Candidate
	Blue sucker	Category 2 Candidate
	Arkansas River shiner	Category 1 Candidate
	Arkansas River speckled chub	Category 2 Candidate
	Alligator snapping turtle	Category 2 Candidate
	Texas horned lizard	Category 2 Candidate
	Migrant loggerhead shrike	Category 2 Candidate
Washington	Peregrine falcon	Endangered
	Bald eagle	Endangered
	Piping plover	Threatened
	Prairie mole cricket	Proposed Threatened
	Ozark chinquapin (*Castanea pumila* var. *ozarkensis*)	Category 1 Candidate
	Alligator snapping turtle	Category 2 Candidate
	Texas horned lizard	Category 2 Candidate
	White-faced ibis	Category 2 Candidate
	Ferruginous hawk	Category 2 Candidate
	Long-billed curlew	Category 2 Candidate
	Western Snowy plover	Category 2 Candidate
	Mountain plover	Category 2 Candidate
	Migrant loggerhead shrike	Category 2 Candidate
Washita	Whooping crane	Endangered
	Prairie mole cricket	Proposed Threatened
	Texas horned lizard	Category 2 Candidate
	White-faced ibis	Category 2 Candidate
	Ferruginous hawk	Category 2 Candidate
	Long-billed curlew	Category 2 Candidate
	Western Snowy plover	Category 2 Candidate

Pushmataha	Peregrine falcon	Endangered
	Piping plover	Threatened
	Red-cockaded woodpecker	Endangered
	Leopard darter C/H	Threatened
	Ouachita Mtns. indigo (Amorpha ouachitensis)	Category 2 Candidate
	Cumberland sand grass (Calamovilfa arcuata)	Category 2 Candidate
	Small-headed pipewort (Eriocaulon kornickianum)	Category 2 Candidate
	Ouachita rock pocketbook	Category 1 Candidate
	Three-toothed long-horned caddisfly	Category 2 Candidate
	Scaleshell mussel	Category 2 Candidate
	Ouachita Mountain shiner	Category 2 Candidate
	Alligator snapping turtle	Category 2 Candidate
	Migrant loggerhead shrike	Category 2 Candidate
Roger Mills	Interior least tern	Endangered
	Whooping crane	Endangered
	Bald eagle	Endangered
	Arkansas River shiner	Category 1 Candidate
	Arkansas River speckled chub	Category 2 Candidate
	Texas horned lizard	Category 2 Candidate
	White-faced ibis	Category 2 Candidate
	Ferruginous hawk	Category 2 Candidate
	Long-billed curlew	Category 2 Candidate
	Western Snowy plover	Category 2 Candidate
	Swift fox	Category 2 Candidate
Rogers	Peregrine falcon	Endangered
	Bald eagle	Endangered
	Interior least tern	Endangered
	Piping plover	Threatened
	Prairie mole cricket	Proposed Threatened
	Ozark chinquapin (Castanea pumila var. ozarkensis)	Category 1 Candidate
	Western prairie fringed orchid	Threatened
	Arkansas darter	Category 2 Candidate
	Texas horned lizard	Category 2 Candidate
	Alligator snapping turtle	Category 2 Candidate
	White-faced ibis	Category 2 Candidate
	Ferruginous hawk	Category 2 Candidate
	Long-billed curlew	Category 2 Candidate
	Western Snowy plover	Category 2 Candidate
	Migrant loggerhead shrike	Category 2 Candidate
Seminole	Peregrine falcon	Endangered
	Interior least tern	Endangered
	Piping plover	Threatened
	Arkansas River shiner	Category 1 Candidate
	Arkansas River speckled chub	Category 2 Candidate
	Texas horned lizard	Category 2 Candidate
	Migrant loggerhead shrike	Category 2 Candidate
Sequoyah	Peregrine falcon	Endangered
	Bald eagle	Endangered
	Interior least tern	Endangered
	American burying beetle	Endangered
	Piping plover	Threatened
	Carex fissa	Category 2 Candidate
	Paddlefish	Category 2 Candidate
	Longnose darter	Category 2 candidate
	Arkansas River shiner	Category 1 Candidate
	Arkansas River speckled chub	Category 2 Candidate
	Alligator snapping turtle	Category 2 Candidate
	Migrant loggerhead shrike	Category 2 Candidate
	Eastern small-footed bat	Category 2 Candidate
Stephens	Bald eagle	Endangered
	Whooping crane	Endangered
	Peregrine falcon	Endangered
	Texas horned lizard	Category 2 Candidate
	White-faced ibis	Category 2 Candidate
	Western Snowy plover	Category 2 Candidate

Reference 20

Oklahoma Biological Survey

Oklahoma Natural Heritage Inventory

OKLAHOMA BIOLOGICAL SURVEY
2001 Priestly Avenue, Building 605
Norman, Oklahoma 73019-0543, USA
(405) 325-1985
FAX: (405) 325-7702

RECEIVED

AUG 31 1992

Solid Waste Service

Richard L. Brooks, R.S.
Senior Environmental Specialist
Oklahoma Dept. of Health
1000 NE Tenth
Oklahoma City, OK 73117-1299

August 27, 1992

Dear Mr. Brooks:

This letter is in response to your request for information on possible endangered species or other elements of biological significance at the following sites:

✓S/2 NE4 Sec 31 & S/2 NW/4 Sec 32 T22N R14E of IM, Tulsa County
SE/4 SE/4 Sec 36 T2N R2W of IM, Garvin County
NW/4 SW/4 T20N R13E of IM, Tulsa County
SE/4 SW/4 Sec 20 T20N R2E of IM, Payne County
SW/4 NW/4 Sec 31 T14N R2W of IM, Oklahoma County

The Oklahoma Natural Heritage Inventory maintains a database on the status and location of rare species and significant ecological communities in Oklahoma. We have reviewed the information currently in the Heritage Inventory database and found no records of on-site elements. However, elements were found within a four mile radius and/or fifteen miles downstream from some sites. These are listed on the attached table.

The Heritage Inventory database is the most current comprehensive one available on the rare biota of Oklahoma. However, such a database is only as complete as the information that has been collected. For this reason, we cannot state for certain whether or not a given site harbors rare species or significant communities. We suggest you also contact the Environmental Division of the Oklahoma Department of Wildlife Conservation and the U.S. Fish and Wildlife Service, as they may have site specific information of which we are unaware.

If you have any questions concerning the information we provided, please call Ian Butler at (405) 325-7599.

Sincerely,

for Ian H. Butler
Data Coordinator

cc: Ron Suttles, Oklahoma Dept. of Wildlife Conservation
Stephen Forsythe, U.S. Fish and Wildlife Service

IHB.tlb

OKLAHOMA NATURAL HERITAGE INVENTORY
TABLE OF PROXIMAL ELEMENT OCCURRENCES

REQUESTED BY: Oklahoma Department of Health
DATE OF REQUEST: August 25, 1992

SITE SPECIES NAME		STATUS FED	 STATE	ONHI RANK GLOBAL	 STATE	LAST SEEN
S/2 NE/4 Sec 31 & S/2 NW/4 Sec 32 T22N R14E of IM						
Gryllotalpa major (Prairie Mole Cricket)	*	C2	SS2	G2	S2	1990
SE/4 SE/4 Sec 36 T2N R2W of IM						
no findings						
NW/4 SW/4 Sec 32 T20N R13E of IM						
Sterna antillarum (Least Tern)	* **	LE	E	G4	S2B	1991
SE/4 SW/4 Sec 20 T20N R2E of IM						
Ulmus-americana-celtis spp. (Central Bottomland Forest)	**	none	none	G2G3	S2S3	unknown
Penstemon oklahomensis (Oklahoma Beardtongue)	* **	none	none	G3	S3	1977

---

* Occurrence within a four mile radius from the site.
** Occurrence within fifteen miles downstream from the site.

Please note that the information request for SE/4 SE/4 T19N R12E of IM, Tulsa County will be sent at a later date as that topo map is out of the office.

OKLAHOMA NATURAL HERITAGE INVENTORY
EXPLANATION OF NATURAL HERITAGE RARITY RANKINGS

Each species and natural community is given two ranks, a global (G) rank reflecting its rarity throughout the world, and, a state (S) rank reflecting its rarity within Oklahoma.

Global Rank

G1 Critically imperiled globally because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor of its biology making it especially vulnerable to extinction.

G2 Imperiled globally because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of other factors demonstrably making it very vulnerable to extinction throughout its range.

G3 Either very rare and local throughout its range, or found locally (even abundantly at some of its locations) in a restricted range, or because of other factors making it vulnerable to extinction throughout its range; in the range of 21 to 100 occurrences.

G4 Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery.

G5 Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.

GH Historically known, with the expectation that it may be rediscovered.

GX Believed to be extinct.

GU Not yet ranked.

State Rank

S1 Critically imperiled in Oklahoma because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor of its biology making it especially vulnerable to extinction.

S2 Imperiled in Oklahoma because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of other factors demonstrably making it very vulnerable to extinction throughout its range.

S3 Rare and local in Oklahoma(though it may be abundant at some of its locations); in the range of 21 to 100 occurrences.

S4 Apparently secure in Oklahoma.

S5 Demonstrably secure in Oklahoma.

SH Historically known from Oklahoma, but possibly extirpated; not seen in the last 15 years.

SR Reported in Oklahoma, but not documented.

SRF Falsely reported in Oklahoma.

S#M* Migratory.

S#N Nonbreeding in Oklahoma.

S#B Breeding in Oklahoma

SU Not yet ranked.

SX Believed to be extirpated from Oklahoma.

* Rank number (#) included to indicate status.

Other Rank Symbols

? There is a question about the given rank.

Q There are taxonomic questions concerning a species.

T Associated with global rank, indicating a global rarity rank for a particular subspecific taxon.

EXPLANATION OF STATE AND FEDERAL STATUS ABBREVIATIONS

State (Status determined by the Oklahoma Department of Wildlife Conservation)

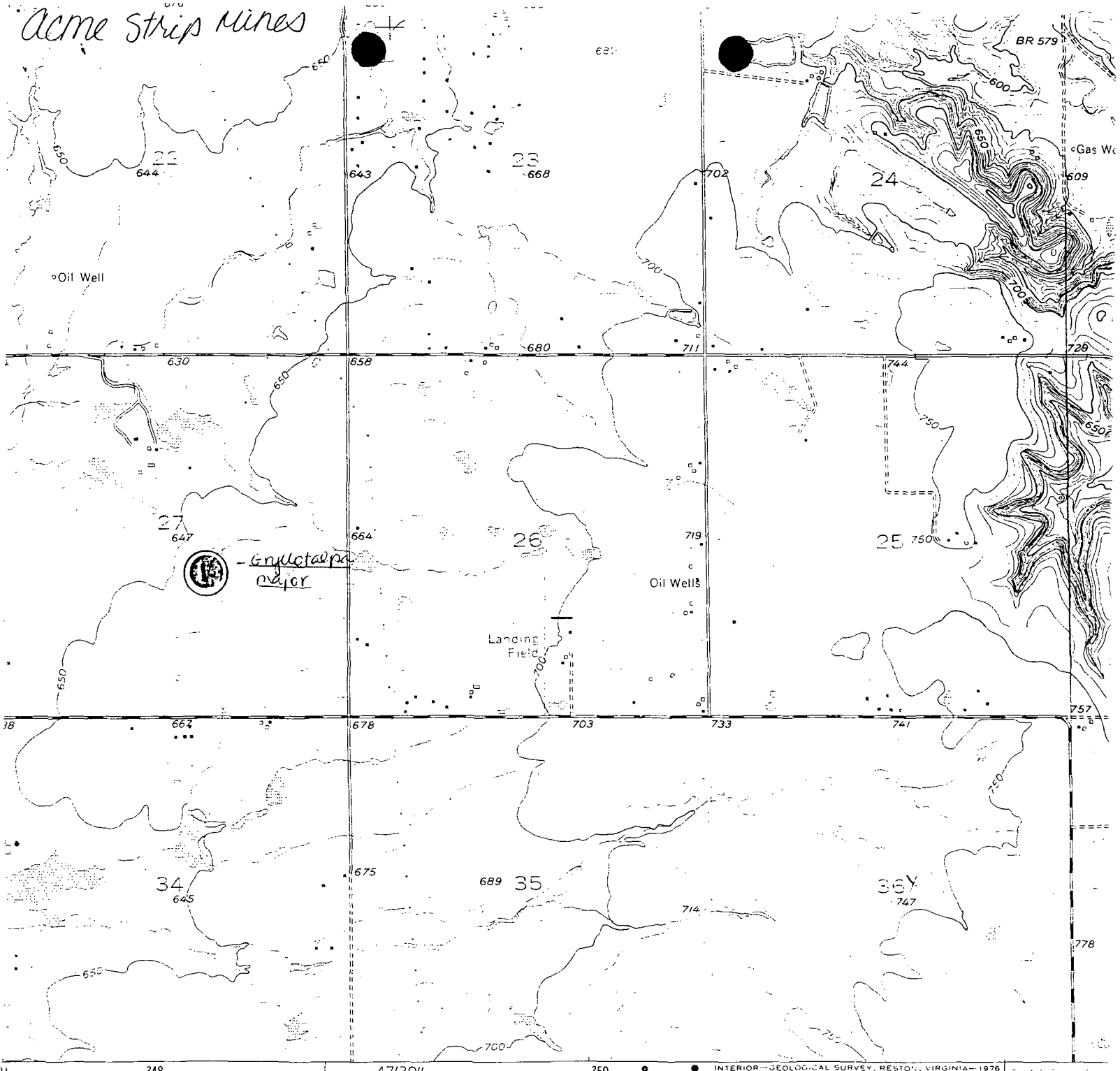
E Endangered in Oklahoma.
T Threatened in Oklahoma.
SN State nominated for listing as threatened or endangered.
SS Species of Special Concern
SS1 - a species that current evidence indicates is especially vulnerable to extirpation because of limited range, low population or other factors.
SS2 - species identified by technical experts as possbily threatened or vulnerable to extirpation but for which additional information is needed.
P Protected from hunting by regulation.

Federal (Status determined by the US Fish and Wildlife Service, Office of Endangered Species)

LE Listed Endangered.
PE Proposed for listing as Endangered.
LT Listed Threatened.
PT Proposed for listing as Threatened.
LELT Listed Endangered in some USFWS regions and Threatened in others.
C1 Category 1 species for listing. Species determined to be in need of protection by listing as Endangered or Threatened.
C2 Category 2 species for listing. Species needs additional study to determine whether it should be listed as Endangered or Threatened.
C2* Category 2 species recommended for elevation to C1 status.
3C Category 3 species. Currently, the species is not recommended for listing as Endangered or Threatened.

Additional information about the federal or state status of species may be available directly from, respectively, the US Fish and Wildlife Service, Ecological Services Office, Tulsa, (918) 581-7458, or, from the Oklahoma Department of Wildlife Conservation, Natural Resources Section, Oklahoma City, (405) 521-4616.

Acme Strip Mines



- Enjuctalpa major

Sec 27 T2IN R14E

4 000 Quadrangle collinsville.

1 MILE

4000 5000 6000 7000 FEET

1 KILOMETER

VAL 10 FEET
ICAL DATUM OF 1929

ROAD CLASSIFICATION

Heavy-duty — Light-duty

Medium-duty — Unimprov

U. S. Route — St

QUADRANGLE LOCATION

COLLINSVI

N3615—\

L MAP ACCURACY STANDARDS
OLORADO 80225, OR RESTON, VIRGINIA 22092
URVEY, NORMAN, OKLAHOMA 73069
ND SYMBOLS IS AVAILABLE ON REQUEST

1'
PHOTOR
AMS 6856 IV

Allegany.....MDALLE	Harford.....MDHARF
Anne Arundel.....MDANNE	Howard.....MDHOWA
Baltimore.....MDBALT	Kent.....MDKENT
Baltimore City....MDBALC	Montgomery.....MDMONT
Calvert.....MDCALV	Prince Georges....MDPRIN
Caroline.....MDCARO	Queen Annes.....MDQUEE
Carroll.....MDCARR	Saint Marys.....MDSAIN
Cecil.....MDCECI	Somerset.....MDSOME
Charles.....MDCHAR	Talbot.....MDTALB
Dorchester.....MDDORC	Washington.....MDWASH
Frederick.....MDFRED	Wicomico.....MDWICO
Garrett.....MDGARR	Worcester.....MDWORC

QUADCODE (32)

Code for the USGS topographic quadrangle using the Universal Map Code Locator system (UMCLS, see Appendix I). Enter centroid quad first, then any additional quads that the EO covers partly or fully. Multiple quads are separated by a space. Example:

3807754 3807764 3807765

QUADNAME (40)

Quad name. List the centroid quad first. Use a comma but no space as a separator. Use the USGS quad names as they appear on the quad.

PRECISION (2)

Precision to which EO as described can be located on a topographic map.

These codes are defined as follows:

Symbol

S = Seconds; accuracy of locality mappable within a three-second radius (roughly the area covered by the dot), i.e., the place as described in source(s) is precisely mappable, whether or not element is known to occur precisely there.

M = minute (within a one minute radius, approx. 2 km or 1.5 mi. from centerpoint of your dot.)

G = general (to quad or place name precision only, precision within about 8 km or 5 mi.)

U = Unmappable (cannot be mapped due to incomplete or inaccurate information)

To indicate whether or not the EO has been found at the site or that it has been extirpated see the EORANK field.

Note also that an M or G report is sometimes kept as a separate EO record despite knowledge of an S report within the same M- or G-precision area on the grounds that confirming the

Reference 21

Alt-Z Help |Alt-Tab Menu| EC | | |FDX|CR| | MTEZ by MagicSoft, Inc.
Enter the next ring distance
TGEMS>

Enter program execution mode: B (batch) or I (interactive)
TGEMS> i

Acme Brick Strip Mines
LATITUDE 36:20:45 LONGITUDE 95:50:51 POPULATION

KM	0.00-.400	.400-.810	.810-1.60	1.60-3.20	3.20-4.80	4.80-6.40	SECTOR TOTALS
S 1	0	0	0	3241	0	0	3241
S 2	0	0	1285	0	897	146	2328
S 3	0	0	37	0	0	0	37
S 4	0	0	0	0	3075	0	3075
S 5	0	0	0	0	0	165	165
S 6	0	0	0	0	911	0	911
RING TOTALS	0	0	1322	3241	4883	311	9757

press RETURN to continue

1990 Census Data
Compiled by Richard D. Brooks
10/6/92.